"An Enhanced Approach With Regard To Kano Satisfaction to Minimize the Power Imbalance between the End Users and Stakeholders"

By

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Certificate of Approval

I certify that I have read "An Enhanced Approach with Regard to Kano Satisfaction to Minimize the Power Imbalance Between End Users and Stakeholders" by Saad Mujahid Khan and that in my opinion this work meets the criteria for approving a thesis submitted in partial fulfilment of the requirements for the degree of Masters in Software Engineering at the Abasyn University, Islamabad.

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Saad Mujahid Khan

Date: 18th November 2019

Dedication

This research is dedicated to My Parents, Family who's Love, Unselfish support and example over many years laid the foundation for discipline and application necessary to complete this work.

Acknowledgement

List of Acronyms and Abbreviations

SRS   Software Requirement Specification

RE   Requirement Engineering

A   Attractive

O   One Dimensional

M   Must Be

I   Indifference

R   Reverse

Q   Questionable

TQS   Total Quality Score

3C's   Correctness, Conciseness and Consistencies

FP's   Functional Points.

UC   Use Cases

V&V   Verification and Validation

NLP   Natural Language Problems

SQA   Software Quality Assurance

SQC   Software Quality Control

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Abstract

Minimizing Power imbalance of software requirements among stake holders and end users is crucially important for successful software Product. Various contributions on subjected topic have been made in past but still there is a room available for minimizing the power imbalance among. In our presented approach we worked to minimize the effect of power imbalance by sampling the End users and in to three age groups and then we map the requirements with age groups. After filling the questionnaires from End users and, the attributes of Kano model are determined by their concern End Users and that's how power imbalance can be reduced and later we calculated the satisfaction index by considering the relevant age group's value. The results are further quantitatively determined in order to achieve the authenticity of the methodology

CHAPTER 1

INTRODUCTION

Software has become the back bone of IT Industry. Quality of Software is an attribute on which the satisfaction of the customer depends upon. Stake Holders are the higher authorities of an organization that will be of cooperate level. Failure or success of any software product mainly depends on features which are being extracted from because it contains all the requirements [1]. Many approaches have been developed to enhance the quality of the SRS with respect to different attributes of the product, different analysis have been performed also to analyse main cause of failures of SRS, It have been found that ambiguousness is the main cause of SRS failure and after that 3 C's (Correctness, Conciseness, Consistency) are other major factors cause of the failures.it has been seen in the past that often the features are incorrect around 25% of errors are related to incorrect requirements of features and the other major issue regarding to software requirements is related to conciseness. Often features are not concise and they are conflicting with other requirements. Last but not the least it has been noticed that features are inconsistent. As we all know that few features are not stable but in future this inconsistency cause a lot of problems in software. Requirement management is an area which deals with these sorts of requirement issues. The main purpose of requirement management is to manage the change, conflicts and inconsistencies in the requirements and further categorize them and documented them. So that features becomes traceable [2]. Customer satisfaction is very important for the development of any product of organization. After the development of any product mostly customers complained about its poor performance, compatibility and much other service which will become very difficult for any organization to maintain its product. Ambiguity in requirements cause power imbalance and produce confusion regarding to nature of specific feature in any module. Kano Model is the model of economics which classifies requirements in different categories with respect to its attributes. In organizational projects mostly the managerial level often provide requirements to the requirements engineers Mostly they do not provide exact need as they are unaware with end user's demand. After the development of the software many issues are then raised by the end users [3]. End users are the staff at lower level of organization which will perform the all

proceedings of the task to present it to the higher authorities for the approval. This will not only affect the daily routine work of End Users but also the reputation of the software company. This is because of the power imbalance between the Stake Holders and End Users because Stake Holders are the laymen but they actually knows about the exact functionality of product but they will can't understand the problems that come in the processing at lower level[4]. Since Kano Model has been implemented on tangible products, Implementation of these Kano ideas in software products can enhance the quality of software products by evaluating the satisfaction and dissatisfaction index from customers by applying Kano formulas. In our research we will extract Features and then we will produce Kano Questioner which will categorise features as per the judgement criteria of stake holder and end user. These judgement indexes will be added in Kano Satisfaction formula to ensure the customer satisfaction level. After that we will prioritize the nature of the features on the basis of authority level by using different cases. Then we can categorise the features more accurately and get maximum output of requirements.

1.1PROBLEM STATEMENT

Requirements of software plays important role in software development. Since there are many requirements associated with the software which will sometimes produce a conflict among teams that which one is more important than other. In some cases we do not know that which requirement will attract the customer more and which will not. This confusion often damages the quality of product. To address this issue we have applied requirement categorisation technique to analyse the nature of requirement from End User's and Stake holders' perspective and will minimize the power imbalance between both parties.

1.2 RESEARCH OBJECTIVES

This research is objected to overcome the power imbalance among the stakeholders and end users as they are different levels of stakeholders which are directly or indirectly involve in the development of software product. Therefore the main objective of the subjected research is to balance the powers among the stakeholders and end users so that the software quality can be improved directly. This research addresses the following research objectives:

- Extracting Features from.

- Generate Questionnaire from extracted features.

- Produce output from filled questionnaire

- Categorisation of features from Stake holder and end users perspective.

- Calculating Satisfaction index

- Prioritization of Features by applying cases to extract accurate categorization of all features and to minimize the power imbalance between end users and stakeholders.

- Revising the features classification to increase satisfaction level for the software product.

1.3 SIGNIFICANCE OF THE RESEARCH

This research will be helpful in order to achieve quality software which will be cost effective and will ensure the effectiveness, efficiency and robustness of the system. The focus is to develop a mechanism to produce error free and high satisfying product.

The research will contribute in human sphere of knowledge as under:

- This can be use in all type of quality Software products to ensure quality that is affected by Power Imbalance.
- The work can be extended in the same and can be implemented in other tangible product.

CHAPTER 2

LITERATURE REVIEWS

Elmar Sauerwein and other presented a methodology of Kano model focusing on how to delight your customers? [1] How can one attain maximum level for the satisfaction of Customer? What are the basic needs of the customer? Which services can be adopted to increase customer's interest to the product? How can one reduce chance of customer dissatisfaction? All such questions are solved by this research paper. This paper explains a customer satisfaction model of economics known as Kano Model of customer's satisfaction.

This method is adopted to gather and fulfil all the requirements of a customer to attain higher level of customer satisfaction toward a product. This model basically explains three types of customer requirements which when met causes customer satisfaction to a greater extent. First requirement type among the three is Must-Be Requirements. Cleared from the name these are the basic requirements of the customer which should be meet at any cost. Sometimes these requirements are not clearly mentioned by the customer but leaving or eliminating these requirements in the product will cause customer's dissatisfaction, because nobody wants a product which doesn't fulfil their needs, whether they had mentioned them clearly or not. Second type of requirement is One-Dimensional Requirements. These requirements are clearly commanded by the customer. One can say these are the technical requirements of the products. More these requirements are fulfilled greater level of satisfaction is achieved. Attractive Requirements are the requirement which have high impact on the customer's satisfaction with the product. These are the requirements not mentioned by the customer, these are some extra features with the product, so if these requirements are meet then the level of customer's satisfaction increases very high and if not achieved they have no impact on overall satisfaction rate of the customer. There are many benefits of using Kano's Methodology from it the Product requirements are very much cleared. One can know easily which requirement needs more focus and which needs the least. By getting the basic requirements and main concerns of the customer one can find a more better and effective solution for the product development. It also helps to identify which measures can be adopted to get higher customer's satisfaction.

Every customer has different choice about every requirement. We can categorize it in Must-be, One-Dimensional, Indifference and Attractive. So by knowing each

customer's view an optimum solution can be attained to get higher level of customer's satisfaction. While adding attractive requirement to a product the developer must not forget to add must-be and one-dimensional requirements, because a product with least must-be and one-dimensional requirements is considered least satisfied or more dissatisfied and is easily replaceable. One of the most effective ways of gathering customer's requirements is questionnaire. A healthy and well balanced questionnaire helps in more accurate requirement collection that leads to better result. The Kano questionnaire is done in a no. of steps. Step one is the Identification of the Product Requirements. In this step all the basic requirements are listed one by one and then interviewed from different customers their reviews about these requirements. Customer's interview is the best way of identifying real problems and better product requirements of a customer. If we only ask customer about the basic desires of the customer then only an average product will be achieved. The interviewer should be able to pick the hidden or untold requirements of the customer. By examining and identifying all the hidden details a more better and operative product can be achieved. Second step of a Kano questionnaire is the Construction of the Questionnaire. In this step all the product requirements (including the three Kano requirements) are ordered in the form of questionnaire. All customers can answer in changed ways. The first question shows the Customer's response that the feature is included in this product and second question is of if the features is not included in the product. Always develop a questionnaire by customer's point of view (Voice of Customer), because a customer always wants a solution for his problems. The third step of Kano's questionnaire is administering the Customer Interviews. It is very important to decide which method should be used for carrying out a questionnaire. The most effective method is using mail, because the cost of this method is low and results are most independent. But it has a disadvantage that is its low return rate. For this it is better to conduct oral interviews in order to attain faster return rate and to reduce other technical problems. The last step of Kano's questionnaire is the Evaluation and Interpretation. In this step questionnaire is evolved into three steps. First of all functionalities and dis-functionalities are combined and then results of all the product's expected features are listed and then these results are analysed and interpreted. The evaluation of Kano's questionnaire can be done in a no. of ways. First one is evaluation According to Frequencies. This is the easiest way of evaluating results. In this method all the product requirements are collected along with their results from table of results (table created by conducting questionnaire) and then according to their ranges they are evaluated. As different customers have different

problems so results can be varied for different customers. Second one is Evaluation Rule M>O>A>I. Here M is for Must-be, O is for One-dimensional, A is for Attractive and I is for individual requirements. The evaluation rule is basically a priority order to identify which requirement should be fulfilled first and which should be last. This would help to build a product full of amazing features. Thirdly the Coefficient of Customer's satisfaction presents either the satisfaction of product can be increased by achieving a product's requirement or this requirement simply satisfying customer's satisfaction. It indicates whether a product requirement is satisfying or dissatisfying the customer.

The CS coefficient can be positive or negative. The positive CS coefficient value ranges from 0-1. If this value is closer to 1 the customer satisfaction level is high and if it is closer to 0 the customer is not affected at all. It neither satisfies nor dissatisfies the customer. If the value of negative CS coefficient reaches -1, it means customer is highly dissatisfied because his requirements are not met. Fourth and the last one is Quality Improvement Index. Quality of a product can be checked by comparing your strongest competitor's product with your product. This helps to show your product's advantages and disadvantages with your competitor's product. By knowing where to work on your product helps you to build a long term and reliable product.

Arash shahin and others purposed in their paper to develop some topologies associated with Kano model [2].The Findings shows that the existing types of Kano model has some flaws. The proposed model provides some valued references to the researchers. These references can be use by researchers for future research. The Kano Formula gives the satisfaction and dissatisfaction indexes of customers. Kano defines four attributes on which the SI and DI of customers can be evolved.it also has some disadvantages. In Kano questionnaire we can get customer needs from which we can categories the customer's attractive elements. But it may be noted that how extremely attractive it be to the customer. Somehow the customer also never expresses their opinions on a particular product or requirements that either they fulfil their needs or not. Kano's approach is a good approach for industries to analyse main quality attribute to make good decision on quality of product, but this model also has some deficiencies. According to the refined Kano model, quality attributes are further split into more detailed categories by classifying must be and attractive attributes into three more categories. Next topology shows that five qualities attributes are being used in industries and researchers but it also has some deficiencies because now a day

we have to produce attractive features to attract customers that will also improve the quality of product. For this we have to convert must-be requirement to attractive by pass it through One-dimensional. This become more complete and correct than previous Kano Model.

This study explains the new technique for Kano model in which starting point, categorization and the slope of curves are working collectively with their table. It gives the more clear differences between customer and available resources. In recent market industry, the customization has become gradually more important, which leads the company to success. It became necessary for marketers to make fresh and efficient product. Therefore the writers strongly said that in phase, more work will be done in Kano's model improvement.

The Knowledge of customer requirements and satisfaction is very important in product design and its services. As in [3] Dauw-song Zhu and others discussed the Kano Model for customers' satisfaction which classifies the product attributes on the basis that how they are supposed by customers and their impact on customers' satisfaction. These orderings are valuable for managing project decisions in such a way that they should clarify when it's adequate or when it will be better. A good product meets all basic requirements and includes as many additional features as possible at a reasonable cost. In this paper the author, performed IPA (importance-performance analysis) in which lower importance plays less part and high importance likely play important role in defining customer's satisfaction. The Author designed a questionnaire in which he got quality classification of Kano Model. Positive relationship product features rated the level of satisfaction is higher and vice versa. The Customer satisfaction coefficient shows when quality have improve for all product features after sale service, the satisfaction level can be increased by using recording mode and image stabilizer. However, after sale it will reduce to more dissatisfaction.

Revision of satisfaction and dissatisfaction indexes of the Kano model by re classifying indifference requirements has been performed by Arash Shahin and others [4]. In this research Kano evaluation table were disjointed to four groups of indifference as attractive (I_A), indifference as must be (I_M), indifference as reverse (I_R) and indifference as one dimensional (I_o) attributes by implementing on a case study on the election of presidential government. Author produced a questionnaire comprising of functional and dysfunctional attributes. After getting details from questionnaire, indifference requirements were moved towards other attributes of Kano model. Later on the satisfaction and dissatisfaction indexes of the Kano model are reviewed on the basis of proposed mythology.

Nirmalya Bandyopadhyay presented classification of service quality attributes using Kano's model [5]. This is about service two ways quality model is presented in terms of customer's satisfaction. Service quality attribute are categorized into three quality elements. Customer satisfaction index is taken as satisfaction increment index and dissatisfaction decrement index is deliberated for each of attributes of quality. No attribute is identified as indifferent quality or reserve quality. Economic linearization in 1990,s has major organizational and governing swings in Indian's banking sector. These swings reforms have led lot of progress in the banking sector of India. As a result the banking industry has under gone a major change. In earlier the Indian banking industry which was Government bank but later on there was a competition between private and public players. Due to this competition the banks has to give quality to compete in the market. The main objective is to satisfy the existing customers and to give quality features to attract customers. In this fast growing process the researchers gave more quality attributes that give the profit to their business. The managers should know the importance of quality elements so that they can easily differentiate which element will get more customer satisfaction. At the same time there are chances that some feature may not be effective to satisfy customer. It is important for managers that they classify the service quality attributes to understand their role in customer satisfaction. This type of classification will help manager to prioritize the quality attributes to get more customer satisfaction. The author integrates it with Kano model to give more quality service to banking sector. Such improvements will improve the service quality of banking system so that the banks will attract more customers.

Abdul Hannan and Abdul basit presented Value based requirements classification of software product using fuzzy Kano model [6].The key idea of approach is to pin point client's satisfaction that was typically realized as a one way product, the greater will be the customer satisfaction the more product will be successful. The customer satisfaction were determined to classify quality attributes, and took customer mind-set to explain that how can they use the attributes to given resources .The customer's satisfaction concept was related with the theory to know quality attributes. This can help developers to make attractive quality attributes to enhance customer satisfaction. Customer might still have been non- committal about a service that structures adequacy of certain attributes. Fuzzy Kano model is used in this technique that involved different systems, and experts etc. In proposed model different methods are used to collect the requirements. First we get requirement from elicitation process, a pair of question is formulated to elicited requirement. After the questionnaire the

evolution table and the result of individual product were used. After that experts give their opinion for each requirement then calculate the expert's satisfaction by using formula and give satisfaction index. And then the most important task is that the experts assign values to the requirements in order signify the importance by applying technique based on KANO classification .at the end the most significant level of classification fuzzy logic is involved to minimize the effect of human biasness.

Maria Grazia Violante and Enrico Vezzetti presented Kano Qualitative vs quantitative approaches [7] through frame work by giving categorization method and the qualitative descriptions of several association curves based on the knowledge of Kano model. Many methods have been recommended to extend the Kano model from qualitative type to quantitative approach to get customer requirements more precisely. Results of these quantitative approaches are mixed with each other's. The presented study defines powers and flaws of qualitative and quantitative Kano approaches and proposing an assessment framework that categorize the relationships between methods and features to select the most appropriate practice for examining the most appropriate product and service quality attributes that are affecting the customer satisfaction. Kano model allows identifying the particular attributes that have the potential to elicit Customer Satisfaction or Dissatisfaction. In Kano approach Qualitative analysis based on two steps one is Traditional Kano model (TKM) and second is Force-choice classification method. And Quantitative analysis based on Lee& Newcomb ,Regression approaches, An analytical Kano model ,Berger's Customer Satisfaction(CS) coefficients ,Fuzzy Kano model (FKM),Continuous Fuzzy Kano model (CFKM) and S-CR relationship functions. The proposed frame work worked on the assessment of matrix based on two steps. First is to get quality requirements for the process of classification and then defines the correlation value between requirement and the Kano model. In the future, the context could be enhanced in consideration of all these approaches.

Jonathan Hartmann and Matthias Lebherz gave the Literature review of the Kano Model [8] the development over time (1984-2016) which deals with the development of quality attributes of Kano model which gained the attention of business and market in the end of twentieth century. What work has been done in this field and which goals are achieved? In this paper all the work has been described in terms of three phases known as genesis, discovery and maturity. It also shows the relationship of school of thought "the Kiel school" with the Kano methodology. This paper shows the development made in Kano methodology

from its very First discovery in 1984 till 2016. With the increase in economic activities of business, the problem of understanding customer demand arose. More and more people started to move toward Kano methodology to gain customer satisfaction because this method gave the main attributes to get maximum customer satisfaction with the increasing use of Kano methodology, research began in this field to find more and more methods to solve the problem of understanding customer's needs. The basic need was to get beneath the depth of attractive quality of product. The method followed for literature review in this paper is from the work done on basic attractive quality attributes and Kano methodology then it goes further and links this methodology to a most appropriate school of thought so that the future researchers can have complete overview of the work done in this field.

The main theme of this sequential review is to check the recent developments done in this field. The literature review gives the description of all the important contribution towards the Kano methodology. First phase of literature review is generis (the beginning or origin). Work was done in this phase from 1984-1999. In 1984 Noraiki Kano gave a concept of "property of quality" which says that there are different attributes which leads to job satisfaction and also there are some which leads to job dissatisfaction. In order to get the get the job done it introduces a particular questionnaire to get the quality features of a product.

An important contribution in this field was the collection of ideas. From the case study by Lee and Newcomb in 1997 news ways were adopted to get the quality attributes of a product. Another important research in this field was the wide study in the ski industry. The first 15 years of study on Kano methodology gave some strong papers that opened new ways in the field of research; also several ways were adopted to increase the practical use of quality features. Another phase of literature review is the discovery phase. In this phase all those researches are included which were done in between 2000 to 2008. A wide study was done in this phase and the domain of work was lengthened from products to services.

The first paper of this phase was written by Noraiki Kano in 2001. In this paper he studied the remote control of televisions. He concluded that the remote controlled television system was an attractive quality in the beginning become one-dimensional after some time and finally it become must-be attributes. Then a research introduced those new features which are firstly strange and uncommon before they lie in attractive category. In this phase research was done on three main topics Categorization of Quality Attributes, Other Ways to categorize Quality Attributes and The Connection between Kano Methodology and other

Methods. The first topic in the discovery phase was the Classification of Quality Attributes. In order to improve the results of wide range of Kano methodology some researches were done to improve Kano's questionnaire and the evaluation table. In these researches modified form of tables were presented. In order to improve Kano's questionnaire changes were made in the word selection of the choices given in the questionnaire, due to which chances of error reduced. In other words validity of study is increased by the use of more appropriate words.

The second topic was the classification of quality attributes. 10 out of 27 researches were made on this topic. Different approaches were adopted to classify quality attributes. Kano also gave three-level questionnaire system in this phase. But the study shows that none of the approaches produced better result than Kano Methodology. Also the results of three-level Kano questionnaire were different from five-level Kano Questionnaire. The third topic was the connection between Kano Methodology and other methods. Most commonly used connection was the connection between Kano Methodology and QFD. In this combination the weights of customer's needs of QFD were combined with the categorization of quality attributes. The changes in wording, categorization of quality attributes and combining Kano method with other method turn out to be fruitful but still no better method was developed than Kano method.

The third phase of literature review is the maturity phase. Work was done in this phase from 2009-2016. More researches were done in this phase than the previous phases. New research fields were used. New domains were added. Although new domains were added but the no. of new researches still remained limited. In this phase the papers written studied that personal interactions with customer or employees produced better results. This study reconsidered Kano attributes. This showed that the features of service of employees differ from state to state in a systematic way. Another research proved three life cycles of quality attributes, which supported the significance of theory of attractive quality. It can be said that however the no. of researches increased but the content in these papers nearly remained same. Paper's challenging Kano method remains limited. Only the modified versions of Kano methodology were presented by the researchers. So the literature review of Kano methodology tells that the key emphasis of this research is to identify the relationships to get more customer satisfaction. With the passage of time more papers were written, but in most of the papers researchers tried to use modified form of Kano methodology to solve business problems. Nobody focused on another method rather than Kano method. So the

main problem is a research topic for the future is needed. Other research areas should be given more priority. Because in all the researches the research topic didn't change, this was to get beneath the theory of attractive quality.

The last part off this literature review is the connection of quality attributes and Kano method with a school of thought known as "The Kiel School". This school of thought belongs to the Kiel institute of the economic world. The research field of Kiel School is the structural theories of economic growth and business cycle. It says that the growth and cycles of business are very mush related with real economics. This school of thoughts is more specifically related with the quality attributes and the business cycle. As a cycle is something that keeps on repeating itself so the life cycle of quality attributes is related with the business cycle. As mentioned earlier the quality attributes vary with time. The quality attributes changes from attractive requirement to one dimensional requirement and finally become must-be requirement. The reason behind this is that with the increasing competition and new developments, the requirements of people are changing, and this is changing business and quality attribute cycle as well. So one can say that "The Kiel School" shows the impacts of technological innovations on business and quality attribute cycle can be a new field of research.

Runliang Dou and others presented Application of Combined Kano Model and interactive genetic algorithm for product customization [9]. This technique has been used by companies for quickly respond for buyers. The methodology uses the Kano model to identify several ordered requirements and list them according to customer's satisfaction. There is a huge competition in market so that users have to remain in design process to meet the customer's demands. Interactive genetic algorithm (IGA) has efficiency to solve the optimized problem. When the range of attributes is wide, this method reduces the complexity in product design process. However, there is very appropriate research that relates this approach in the customization of IGA-based product. This method can improve the customization at high level. Product customization is the main link for getting buyer's likings and identifying the possible factors that can make effect on customer satisfaction in a product design process. It was analyzed in the process of data mining where customer wants possible tablet computer attributes. IGA connected the buyer's participation with Computer-aided design. Kano model can be used in all fields to enhance customer satisfaction. Using case study method customers can quickly change its requirements to make the product according

to its desire. The conclusion shows that the method could improve efficiency to a maximum level and completely remove the weakness buy getting the attributes which satisfies the buyer. In the future, accuracy of Kano model classification will improve, by modifying Kano analysis applying on IGA products.

CHAPTER 3

RESEARCH METHODOLOGY

The research is a qualitative research which aims at formulation of a quality process which will practically helpful to develop a quality software product. In the process of obtaining satisfaction indexes of any product we always use the Kano Model techniques to get maximum result for any specific product. In terms of any software product the processing of traditional Kano model is not so effective because there is a huge difference between the decisions and usage of all users because if all the features in the product are usable then the software product will be considered as successful and the satisfaction level of that product will be more. In this scenario we designed a flow chart as in Fig. 1 for getting the maximum result and to minimize the power imbalance between both parties i.e. Stakeholders and End users. In the flow chart we followed steps one by one from start to the end of process that leads it towards a more appropriate software requirement specification document. First step is of extracting features from the requirements. We elicit it by using different techniques of elicitations. From some stakeholders we use the technique of Interviews in which we interviewed different stakeholders. In some cases we use the technique of observations where all stakeholders were discussing about their product and we were observing them and eliciting the features of software product. After getting all feature by using eliciting techniques we moves ahead in the process of generating questioner where we produce two dimensional questioner in which a pair of questions is designed in which end users and stakeholders can define in any of the five ways. First questioner shows the concern of end user and stakeholder about the feature of the product and the second question shows what will happen if the feature is not included in the software product. By designing two dimensional questions we can easily access the features of related software product. In next step we produced output filled questioner by doing survey for three groups (G1, G2 and G3) of basic, intermediate and managerial level from where we calculated the results for the filled questioner. In next step we do the categorization of features on the basis of the output of filled questioner as per the process of Kano model. After categorisation we calculated the satisfaction indexes and dissatisfaction indexes of all features. After the categorization of features we moved to next step where we do the prioritization of features by applying different cases to remove power imbalance between end users and stakeholders. In this step

we minimize the power imbalance by diving them in three different groups and then categorize it separately on the basis of all three groups. Then we compare all the categorization and apply cases on them. After applying cases we found new category in many features. After minimizing the power imbalance we revised the satisfaction level of customers for this produce. And then generate quality SRS document.
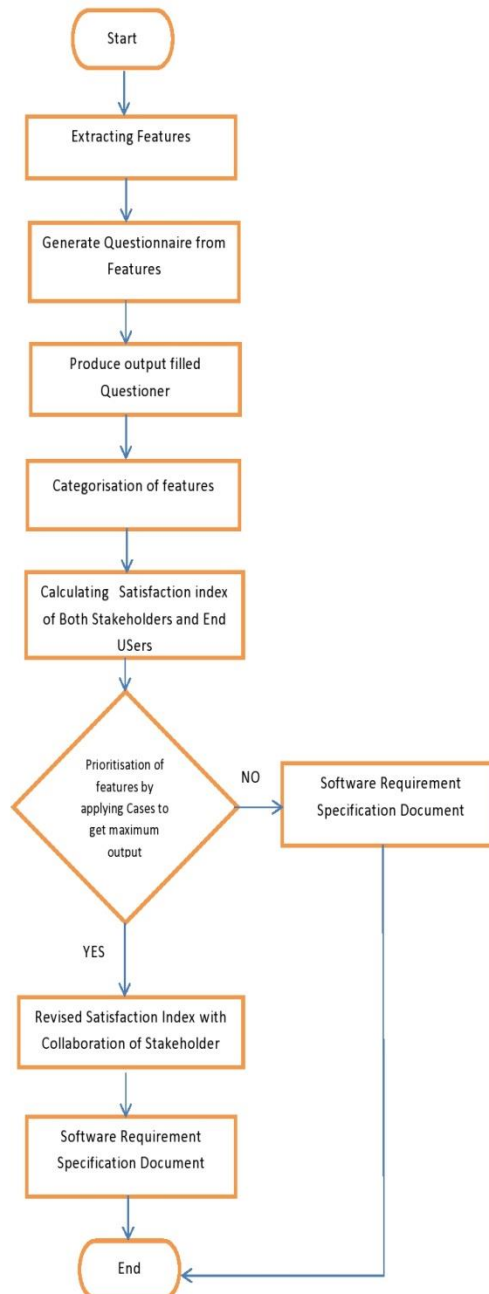
Fig 1: Flow Chart of Presented Approach

Step 1: Extracting the feature from Stake Holders

This is the first step of the process in which the features will be extracted from the to determine the working of the project. The features are the threads of a bigger requirement that complete it. The extraction of features can be take place using different extraction techniques. In our methodology we use interview to extract the basic requirements and then further prioritize their attributes on the basis of questionnaire.

Step 2: Generate Questionnaire:

The output from the first step will be classified and on the basis of classified features a questionnaire is generated in this step. The designing of each questionnaire will be as per the nature and features of the specific project. We have implemented presented approach on three different domains projects in order to analyse the satisfaction of and end users. The template of the design is in Annexure-1.

Step3: Produce Output filled Questionnaire:

The designed questionnaire will be given to end users and in order to determine their consents about the features of the product.

Step4: Categorization of Features:

In next step the features will be categorized on the basis of their importance. The feature must be from following 4 attributes.

- Attractive
- Must be
- One-dimensional
- Indifference

The end user will categorize the requirement on the basis of above options that will ultimately affect the satisfaction index.

Step 5: Calculation of Satisfaction Index of and End Users

Here we will calculate the satisfaction indexes by using Kano formula of both and end users. The variables will be added after processing the outputs from filled questionnaire. After that we will move toward writing of proper SRS document if any clash comes between the decision of Stakeholders and End users then we will move ahead towards step 6.

Step 6: Prioritization of Features by applying cases to extract accurate categorization of all features:

In Prioritisation we applied three cases to get maximum output result of ERP system. In categorization of feature we face difficulty in some feature where clashes between different stakeholders and End User occurred. By applying following logics on the basis of authority level we get the maximum output of feature's results.

Case1:

If **G1**, **G2** and **G3** have different opinion from each other then we will follow **G1's** opinion as they are senior administration of the institute and have more power than **G2** and **G3**.

Case 2:

If **G1** and **G2** have same opinion and **G3** has different opinion then the combine opinion of **G1** and **G2** will be followed.

Case 3:

If **G1** and **G2** have different opinion from each other then we will follow the opinion of **G3** because of their higher rank in institute.

Procedure:

Firstly we take each SI of each feature for G1, G2 and G3 separately. After getting results we apply these cases on the all features to get maximum output results of the product. By using this technique we solved all clashes between stake holders and end users.

Step 7: Revising the Features Classification to increase Satisfaction index:

After removing all clashes between stakeholders and End users we then revise the feature classification and calculate the Satisfaction Index more accurately. Which will give the more satisfaction to Stakeholders and End users and product will work more efficiently. After collaboration from stakeholder we will move ahead in the processing of making Software Requirement Specification Document.

Chapter 4

Results and Findings

The following possibilities are available for processing the results from survey.

Product Feature	A	O	M	I	R	Q	Total	Category
Evaluation Survey	8	34.3	46.3	8.5	0.3	2.6	100%	M
Courses Registration	43.4	18.2	32.3	5.5	0.1	0.5	100%	A
Online Results	23.5	45.2	27.3	3.7	0.2	0.1	100%	O
Schedule	31.2	23.3	31.4	8.9	3.6	1.6	100%	A
Fee Record	22.5	14.3	56.5	6.2	.04	0.1	100%	M
Profile Record	7.2	18.3	21.5	30.2	14.6	8.2	100%	I
Student Survey	19.4	27.3	32.4	11.7	8.9	0.3	100%	M
Alumni Feedback	10.1	29.1	24.1	30.1	5.2	1.4	100%	I
Quizzes Marks	32.1	22.3	19.1	13.2	1.06	2.7	100%	A
Assignments Marks	33	20.5	21.3	10.2	12.2	2.8	100%	A
Mid/Terminal Marks	21	31.2	31.4	9.6	3.6	3.2	100%	M
GPA of Courses	23.4	21.7	30.2	17.3	6.5	0.9	100%	M
Overall CGPA	31.2	21.5	16.7	14.3	11.2	5.1	100%	A
Lecture Notes	34.5	20.7	18.4	21.2	5.1	0.1	100%	A
Fine Record	17.2	13.3	15.2	47.5	4.2	2.6	100%	I

Table1: Overall Results from all samples and Levels

Above table has been constructed on the basis of 175 Samples. The Above results are the combine results of all Stake Holders and End Users. In this way we categorise the Product features. Like in our first feature of Evaluation Survey is Must be requirement because 46.3% of the population consider it as a Must be requirements. In Course registration feature is and Attractive requirement (43.4%). Online Result feature has One-Dimensional requirement (45.2%). Schedule features has Attractive requirement (31.2%). In all our remaining features, we categorise all requirement on the basis of maximum percentage obtain in each category. In obtaining overall result we find clashes in many areas where all three groups have different thinking on feature. In some situations there come clashes between Intermediate level and Managerial level. By obtaining this result we were unable to satisfy all groups that will use this software product. Whereas in order to categorize the above features finally we have to divide them in three categories Basic level, intermediate level and Management level and categories all features separately on the report of survey on the basis of each group.
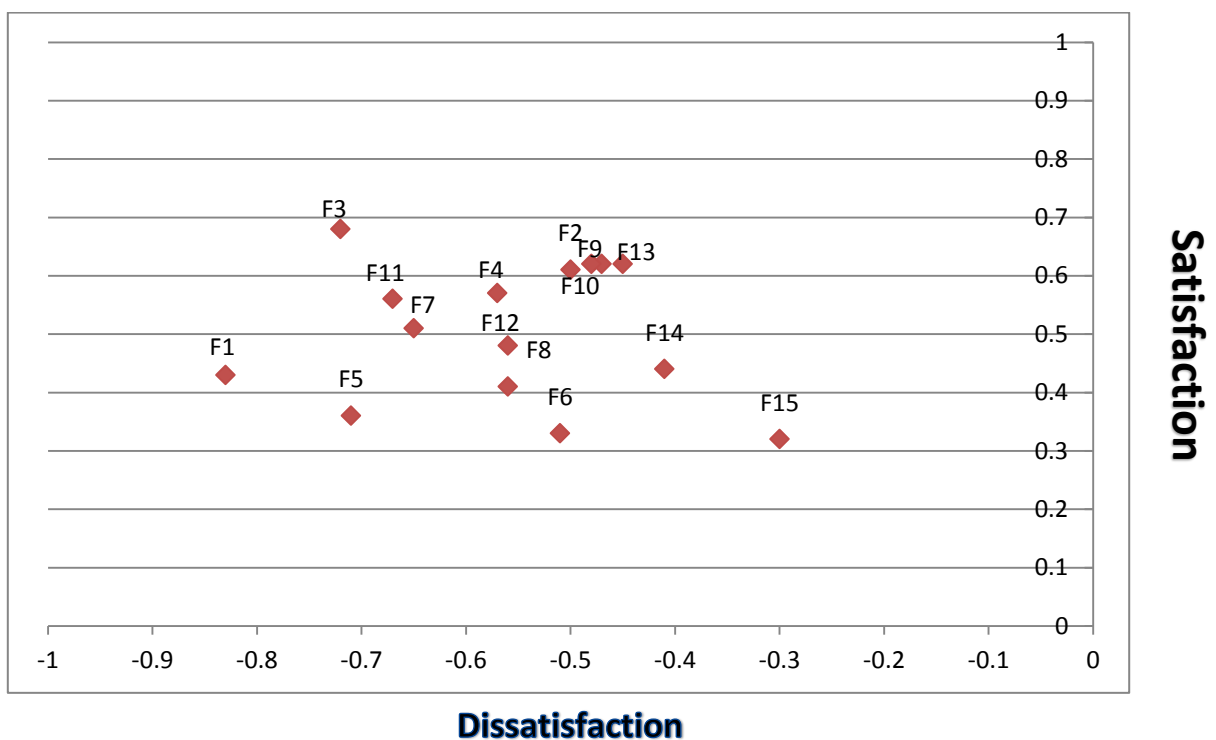
Fig.5 Influence of Features on Satisfaction or Dissatisfaction

The Group G1, which consists on students. We spread the questioner to students of 1st year, 2nd year, 3rd year and 4th Year of different faculties. Here we have the record sample of 75 students of and the results were as follow: -

Product Feature	A	O	M	I	R	Q	Total	Category
Evaluation Survey	19.6	18.5	**32.6**	19.8	7.2	2.3	100%	M
Courses Registration	**50.2**	17.2	18.1	10.5	2.8	1.2	100%	A
Online Results	**46.3**	12.6	21.9	10.2	8.3	0.7	100%	A
Schedule	16.9	15.9	22.4	**38.9**	3.6	2.3	100%	I
Fee Record	18.3	20.2	**30.7**	19.8	8.2	2.8	100%	M
Profile Record	10.2	13.6	12.9	**42.5**	10.2	10.6	100%	I
Student Survey	10.3	12.8	15.3	**38.5**	11.7	11.4	100%	I
Alumni Feedback	10	12	20.2	**46.5**	10.3	1	100%	I
Quizzes Marks	**43.5**	10.3	32.5	10.6	2.6	0.5	100%	A
Assignments Marks	**44.5**	10.3	31.5	10.8	2.4	0.5	100%	A
Mid/Terminal Marks	20.5	12.6	**31.5**	12.8	13.2	9.4	100%	M
GPA of Courses	13.2	15.6	**33.3**	29.6	4.3	4	100%	M
Overall CGPA	**46.1**	12.5	33.3	2.5	4.2	1.4	100%	A
Lecture Notes	**44.6**	15.2	20.9	10.6	7.6	1.1	100%	A
Fine Record	12.3	15.6	18.6	**46.9**	6.4	0.2	100%	I

Table2: Results from Basic Level

The Intermediate level is related to Officers (G2) from BPS-14 to BPS-18 and they have filled it specifically. Out of 175 samples 60 are filled by Intermediate level and the results are as follow: -

Product Feature	A	O	M	I	R	Q	Total	Category
Evaluation Survey	**46.1**	12.5	33.3	2.5	4.2	1.4	100%	A
Courses Registration	20.5	12.6	**31.5**	12.8	13.2	9.4	100%	M
Online Results	12.3	**46.9**	18.6	15.6	6.4	0.2	100%	O
Schedule	19.4	27.3	**32.4**	11.7	8.9	0.3	100%	M
Fee Record	19.6	18.5	**32.6**	19.8	7.2	2.3	100%	M
Profile Record	19.6	18.5	**32.6**	19.8	7.2	2.3	100%	M
Student Survey	**34.5**	20.7	18.4	21.2	5.1	0.1	100%	A
Alumni Feedback	22.5	14.3	**56.5**	6.2	.04	0.1	100%	M
Quizzes Marks	12.3	**46.9**	18.6	15.6	6.4	0.2	100%	O
Assignments Marks	12.3	**46.9**	18.6	15.6	6.4	0.2	100%	O
Mid/Terminal Marks	12.3	**46.9**	18.6	15.6	6.4	0.2	100%	O
GPA of Courses	12.3	**46.9**	18.6	15.6	6.4	0.2	100%	O
Overall CGPA	**46.3**	12.6	21.9	10.2	8.3	0.7	100%	A
Lecture Notes	**30.1**	29.1	24.1	10.1	5.2	1.4	100%	A
Fine Record	**29.1**	28.1	25.1	11.1	4.2	2.4	100%	A

Table3: Result from Intermediate Level

The Third Group was of Managerial level (G1) are of Officers having grade BPS 19 and Above are related to executive bodies and out of 175 samples 40 samples are filled from this age group. The results are as follow:-

Product Feature	A	O	M	I	R	Q	Total	Category
Evaluation Survey	8	34.3	**46.3**	8.5	0.3	2.6	100%	M
Courses Registration	8	34.3	**46.3**	8.5	0.3	2.6	100%	M
Online Results	8	34.3	**46.3**	8.5	0.3	2.6	100%	M
Schedule	**34.5**	20.7	18.4	21.2	5.1	0.1	100%	A
Fee Record	**34.5**	20.7	18.4	21.2	5.1	0.1	100%	A
Profile Record	19.5	13.6	**30.5**	13.8	15.2	7.4	100%	M
Student Survey	21.5	11.6	**34.5**	9.8	12.2	8.4	100%	M
Alumni Feedback	22.5	10.6	**34.5**	8.8	12.2	10.4	100%	M
Quizzes Marks	17.5	15.6	**36.5**	7.8	11.2	11.4	100%	M
Assignments Marks	16.5	16.6	**37.5**	10.8	10.2	7.4	100%	M
Mid/Terminal Marks	19.5	13.6	**29.5**	14.8	13.2	9.4	100%	M
GPA of Courses	22.5	12.6	**27.5**	12.8	19.2	3.4	100%	M
Overall CGPA	19.5	13.6	**32.5**	11.8	15.2	7.4	100%	M
Lecture Notes	19.5	13.6	**30.5**	13.8	15.2	7.4	100%	M
Fine Record	20.5	12.6	**31.5**	12.8	13.2	9.4	100%	M

Table4:- Results from Managerial Level

In Prioritisation we applied three cases to get maximum output result of ERP system. In categorization of feature we face difficulty in some feature where clashes between different stakeholders and End User occurred. By applying following logics we get the maximum output of feature's results.

Case1:

If **G1**, **G2** and **G3** have different opinion from each other then we will follow **G1's** opinion as they are senior administration of the institute and have more power than **G2** and **G3**.

Case 2:

If **G1** and **G2** have same opinion and **G3** has different opinion then the combine opinion of **G1** and **G2** will be followed.

Case 3:

If **G1** and **G2** have different opinion from each other then we will follow the opinion of **G3** because of their higher rank in institute.

By applying these cases we came up with the result that the category of the requirements is now changed on the basis of prioritization. In whole process we came up with different problem. We have three different group in this survey and have different End Users and Stake Holders. In our Survey many features have different user due to which requirements were not clearly categorised. Some Features are linked to basic level that is of students and some features linked to intermediate level and some features were related to managerial level. Before applying cases on results of our questioner we came across many situations when the features which are important for Intermediate level were Categorise in unexpected area through survey. And sometimes the requirement which were more important for managerial level are neglected by Basic levels group or intermediate level. In one scenario situation became worst when the clash between Intermediate level and Managerial level arise. Accountant wants to maintain and issue their record of account by using their authority and Director finance of Managerial level want to keep all authority in his hand as he thoughts that accountant will missuses his power. Here we solved this cash by using out power mitigation technique that managerial level person has more power and experience then intermediate level. So, we authorised the head of finance as to has powers to release or manage funds. By

doing this the category of Funds sections is changed and gone to Must Be from indifference. In another case we came across the issue of uploading assignment and quizzes to software. Where students were not satisfied with this features as the process will become automated and they will not get any favour from faculty but the faculty member of intermediate level and managerial levels definitely wants this feature in software because they want to do it in time and to strict students to submit their assignment and quizzes on time. So, in this scenario we applied our cases and mitigate by using power mitigation. Due to which this requirement goes to Must Be from indifference. In another case of maintain profile record of All students and employees of University. Two groups (Basic Level and Intermediate Level) do not want to have this feature on systems. They want to have this process in manual situations as the students have just their basic profile in concern departments and the staff of intermediate level have their profile record in the form of their personal file due to this manual process they have many facilities of removing or adding supporting document in their personal files and can update it as per the situation but having the profile record feature online they have no access to add or delete any supporting documents in their profile and any senior of managerial level can access and check its profile easily. In this situation our prioritization technique works where the requirement of profile records moves from the category of Indifference to Must Be. Through which process will become automated and can easily be managed. By applying prioritization technique, we have now more chances that we will satisfy all the stake holders and End User and minimize the power imbalance between both parties. In following table we can easily understand the changes of Categories from overall results and after removing the power imbalance by applying cases.

Product Feature	Category of G1 Basic Level	Category of G2 Intermediate level	Category of G3 Managerial Level	Categorization from Overall results at all levels	Categorization after Removing Power Imbalance
Evaluation Survey	M	A	M	M	M
Courses Registration	A	M	M	A	M
Online Results	A	O	M	O	M
Schedule	I	M	A	A	A
Fee Record	M	M	A	M	M
Profile Record	I	M	M	I	M
Student Survey	I	A	M	M	M
Alumni Feedback	I	M	M	I	M
Quizzes Marks	A	O	M	A	M
Assignments Marks	A	O	M	A	M
Mid/Terminal Marks	M	O	M	M	M
GPA of Courses	M	O	M	M	M
Overall CGPA	A	A	M	A	A
Lecture Notes	A	A	M	A	A
Fine Record	I	A	M	I	M

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Table 5: - Results after removing Power Imbalance

Chapter 5

Conclusion and Future Work

This research was conducted to achieve quality in software product. Our focus in the subjected research was to reduce the power imbalance. In our Research we determined that traditional Know model approach was not fully satisfied the stakeholders and End Users. There always remain issues when Stakeholders is satisfied about specific feature and End User is not satisfied due to overall result the feature or requirements get change due to maximum numbers of user's option regarding the specific issue. But in the cases of software development. Kano model was not so helpful in making software live, efficient and trust worthy because when we take survey on the basis of Kano Model the feature was not clearly categorised because of power imbalance between Stakeholders and End Users. If the feature was not liked by End Users and stakeholders wants that feature in the software then in result that feature was not used by End Users and the quality of product will decline and the life of software product will definitely be decreased. In our Approach we minimize the power imbalance between Stakeholders and End User by applying cases on the basis of prioritizations. By applying our cases the category of features gets changed and those requirements which were not important for the one group of survey due to their numbers the important feature for other End Users was neglected. By applying cases the neglected features will become important feature in product due to which we minimize the power imbalance between Stakeholders and End Users with regard to Kano satisfaction. In future there is still room available to proceed with this work as Cost effectiveness of this approach can be calculated by applying the relevant cost model. Due to which the efficiency of software product will become higher and the cost of software development will get decreased and there will be very less chances to make bad SRS for any Software Product. And this research can be extended to next level where we can automate the presented approach which will ultimately make the decisions easy to categorize and can make the processing more efficient.

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Developing Organization	**SED Solutions, UAJK Muzaffarabad**
Title	ERP System UAJK for Quality Enhancement in education.
Developers	Mr. Zaman & Mr. Qazi Arbab
Tester	Mr. Zeeshan Rasheed
Front End Developer	Mr. Sadaqat Hussain
Stake Holder	Director QEC, Deans, Registrar and Worthy Vice Chancellor
End Users	Basic, Intermediate and Managerial Levels

Questioner:

1.	If Admin create departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
2.	If Admin cannot create departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
3.	If Admin can add departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
4.	If Admin cannot add departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
5.	If Admin can delete departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
6.	If Admin cannot delete departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
7.	If Admin can update departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

8.	If Admin cannot update departmental admin/ focal person.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
9.	If Admin can maintain and troubleshoot the platform time to time.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
10.	If Admin cannot maintain and troubleshoot the platform time to time.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
11.	If Admin can upgrade the platform time to time.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
12.	If Admin cannot upgrade the platform time to time.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
13.	If Admin can generate overall performance report.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
14.	If Admin cannot generate overall performance report.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
15.	If Admin can back up the platform data.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
16.	If Admin cannot back up the platform data.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
17.	If Admin can be responsible for the 24/7 liveliness of the platform.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way

		5) I dislike it that way
18.	If Admin cannot be responsible for the 24/7 liveliness of the platform.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
19.	If Admin is responsible for writing the questioner in order to the improvement of the course.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
20.	If Admin is not responsible for writing the questioner in order to the improvement of the course.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
21.	If Admin is responsible for writing the questioner in order to the improvement of the instructors.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
22.	If Admin is not responsible for writing the questioner in order to the improvement of the instructors.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
23.	If Admin can coordinate with the focal persons.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
24.	If Admin cannot coordinate with the focal persons.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
25.	Admin can organize workshops for the better usage of the system time to time.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
26.	Admin cannot organize workshops for the better usage of the system time to time.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

27.	Departmental focal person can create users as a faculty.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
28.	Departmental focal person cannot create users as a faculty.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
29.	Departmental focal person can create users as a student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
30.	Departmental focal person cannot create users as a student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
31.	Departmental focal person can create users as a clerk.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
32.	Departmental focal person cannot create users as a clerk.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
33.	Departmental focal person can register students in different sessions.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
34.	Departmental focal person cannot register students in different sessions.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
35.	Departmental focal person can delete student for any session.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

36.	Departmental focal person cannot delete student for any session.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
37.	Departmental focal person can make status of the student as active or inactive.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
38.	Departmental focal person cannot make status of the student as active or inactive.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
39.	Departmental focal person can activate the quality enhancement survey for the improvement of departmental courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
40.	Departmental focal person cannot activate the quality enhancement survey for the improvement of departmental courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
41.	Departmental focal person can activate the quality enhancement survey for the improvement of departmental instructors.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
42.	Departmental focal person cannot activate the quality enhancement survey for the improvement of departmental instructors.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
43.	Departmental focal person can activate the quality enhancement survey for the improvement of course.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
44.	Departmental focal person cannot activate the quality enhancement survey for the improvement of course.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
45.	Departmental focal person can manage various sessions.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way

		5) I dislike it that way
46.	Departmental focal person cannot manage various sessions.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
47.	Departmental focal person can allocate the courses to the departmental instructors.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
48.	Departmental focal person cannot allocate the courses to the departmental instructors.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
49.	Departmental focal person can de- allocate the courses to the departmental instructors	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
50.	Departmental focal person cannot de- allocate the courses to the departmental instructors	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
51.	Departmental focal person can register students in various courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
52.	Departmental focal person cannot register students in various courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
53.	Departmental focal person can unregister students in various courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
54.	Departmental focal person cannot unregister students in various courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
55.	Departmental focal person is responsible for the management of students account.	1) I like it that way 2) It must be that way 3) I am Neutral

| | | 4) I can Live with it that way |
		5) I dislike it that way
56.	Departmental focal person is not responsible for the management of students account.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
57.	Departmental focal person is responsible for the deletion of students account.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
58.	Departmental focal person is not responsible for the deletion of students account.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
59.	Departmental focal person is responsible for the password recovery if he/she forgets his/her password.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
60.	Departmental focal person is not responsible for the password recovery if he/she forgets his/her password.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
61.	Departmental focal person can print attendance sheets.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
62.	Departmental focal person cannot print attendance sheets.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
63.	Departmental focal person can perform course evaluation for each enrolled student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
64.	Departmental focal person cannot perform course evaluation for each enrolled student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

65.	Departmental focal person can perform teacher evaluation of each offered course.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
66.	Departmental focal person cannot perform teacher evaluation of each offered course.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
67.	Departmental focal person can generate reports of survey performed by students of the evaluation of both teachers and courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
68.	Departmental focal person cannot generate reports of survey performed by students of the evaluation of both teachers and courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
69.	Departmental focal person can enter detail record of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
70.	Departmental focal person cannot enter detail record of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
71.	Departmental focal person can display the results through this platform.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
72.	Departmental focal person cannot display the results through this platform.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
73.	Departmental focal person can perform graduated student's survey as an alumni feedback.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

74.	Departmental focal person cannot perform graduated student's survey as an alumni feedback.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
75.	Departmental focal person can perform faculty satisfaction survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
76.	Departmental focal person cannot perform faculty satisfaction survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
77.	Departmental focal person can maintain departmental modules.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
78.	Departmental focal person cannot maintain departmental modules.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
79.	Departmental focal person can upgrade departmental modules.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
80.	Departmental focal person cannot upgrade departmental modules.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
81.	Departmental focal person can resolve quires asked by the students.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
82.	Departmental focal person cannot resolve quires asked by the students.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

83.	Student can view their results of all taught courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
84.	Student cannot view their results of all taught courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
85.	Student can view all registered courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
86.	Student cannot view all registered courses.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
87.	Students can perform course evaluation survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
88.	Students cannot perform course evaluation survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
89.	Students can perform teacher evaluation survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
90.	Students cannot perform teacher evaluation survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
91.	Graduate students can also perform graduate students survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

92.	Graduate students cannot also perform graduate students survey.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
93.	Students can view their respective results online.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
94.	Students cannot view their respective results online.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
95.	Students can view their time timetable online.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
96.	Students cannot view their time timetable online.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
97.	Students can view assignments uploaded by their faculty member in his/her account.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
98.	Students cannot view assignments uploaded by their faculty member in his/her account.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
99.	Students can view Quizzes uploaded by their faculty member in his/her account.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
100	Students cannot view Quizzes uploaded by their faculty member in his/her account.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

101	Clerk can enter the record of fee in the platform.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
102	Clerk cannot enter the record of fee in the platform.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
103	Clerk can view the fine of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
104	Clerk cannot view the fine of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
105	Clerk can edit the fine of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
106	Clerk cannot edit the fine of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
107	Clerk can edit the amount of fee paid by the student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
108	Clerk cannot edit the amount of fee paid by the student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
109	Clerk can generate the final statement of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way

110	Clerk cannot generate the final statement of each student.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
111	Clerk can generate the list of defaulter students who have not paid their fee.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
112	Clerk cannot generate the list of defaulter students who have not paid their fee.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
113	Clerk can provide fee chalan to students.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
114	Clerk cannot provide fee chalan to students.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
115	Clerk can update his/her profile.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way
116	Clerk cannot update his/her profile.	1) I like it that way 2) It must be that way 3) I am Neutral 4) I can Live with it that way 5) I dislike it that way