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REQUIREMENT ELICITATION THROUGH MOBILE BASED SOCIAL NETWORKING APPS FOR EMPOWERING CROWD

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Abstract: There are revelation, growth, and improvement elements to the elicitation process. Requirements elicitation is a strategy including numerous strategies with a mixture of accessible scenarios, methodologies, and devices for performing them. In this paper we just focus on analyzing and validating the social impact in requirement elicitations through Mobile based Social Networking Apps for empowering the crowd.

Keywords: Requirement Elicitation, Mobile Apps

Introduction

Mobile Based Social Networking Applications (MB^{SNA}) for RE support

In this paper we have emphasize on the way of empowering the crowd using Mobile Based Social Networking Applications in support to Requirement Elicitation in the scenario of requirement engineering phases in software development. We have analyzed various elicitation techniques and requirement elicitation process using different social networking applications. However, no significant comparative evaluation of these techniques has been made so far. . In this work a new process for requirement elicitation is has been proposed and described. This new process of requirement elicitation is based on social networking site as an mobile application. In this framework stakeholders /end users and experts perform prediction of requirement completeness and understandability. Since the today's scenario is changed by more utilization of mobiles rather than the personal computer or laptop or notebook. Mobile based solutions is the best way to reach the end users more frequently where Social networking apps play a vital role to enrich the end users involvement that support mutual sharing and interactivity, either they are active users or not in a group, are able to communicate and share their ideas to each other. As in different papers says, we conclude that the WhatsApp is more user-friendly and near to end user's reach as compared to others mobile based social apps. As we can see from the implementation results by seeing the weight of different applications in this survey, we can conclude that the most popular mobile social networking application is Whats App by comparison of their utilization on the basis of their different features where rest are less uses as compare to this app. As a result we can say

that Requirement elicitation can be easily done by using the different social networking sites as they are the real factors for empowering the crowd of the stakeholders/ end users.

Requirements engineering is a crisis point in the buildup of application because at this stage theexpectation, functionality, and perimeter of the software are supposed to be fully diagnosed, analyzed and defined. It has also been identified that most of the software projects fails to meet the real need are related to requirements engineering areas like capturing, analyzing, specifying, and managing requirements. In some life cycle models [1], feasibility study is the initial activity in the requirement engineering process that results in a feasibility report.

Facebook, Messenger, WhatsApp and Telegram are proud examples of SNA that have millions of users. We select them to become our partakes for an operation of our RE attitude as all are have a several number of registered and active end users - conferring to the figures provided by Alexa. Another criterion was provincial reception – the selected SNA are popular in India. In order to identify the most suitable SNA, the authors performed an initial comparison after defining the key rations for MB^{SNA} supported RE approach. We explored which of their features are used to support the predefined key requirements.

Requirements Serial No.	Requirements
RQ1:	Is this app is most popular?
RQ2:	Is this App is Free of cost?
RQ3:	Can we have Free voice calling?
RQ4:	Is mobile number used in Account creation?
RQ5:	Is there Message seen confirmations available?
RQ6:	Is Automatic backup possible?
RQ7:	Is there High Security available?
RQ8:	Sending pictures/graphics are easy?
RQ9:	Can we transfer videos?
RQ10:	can we Send voice messages?
RQ11:	is Search function available?
RQ12:	Can we Send location data?
RQ13:	can we have option to log out?
RQ14:	Can we make video calling?
RQ15:	Can we Set wallpapers?
RQ16:	Is this app provide Notifications?
RQ17:	Can we make Secret Chat?
RQ18:	Can we make Group Chat?
RQ19:	Can we have Broadcast List?
RQ20:	Can we Communicate ideas?
RQ21:	Can we Comment on given ideas?
RQ22:	Can we make Group discusion?
RQ23:	Can we Control group access
RQ24:	are being get Contact no. in Group automatically shown?
RQ25:	Is animation possible?

Table:4.1 Checklist for Requirements Elicitation in MB^{SNA}

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	Facebook	WhatsApp	Telegram
RQ1:	No	Yes	No
RQ2:	Yes	Yes	Yes
RQ3:	Yes	Yes	No
RQ4:	Yes	Yes	Yes
RQ5:	Yes	Yes	Yes
RQ6:	No	Yes	Yes
RQ7:	No	Yes	No
RQ8:	Yes	Yes	Yes
RQ9:	Yes	Yes	Yes
RQ10:	Yes	Yes	Yes
RQ11:	Yes	Yes	Yes
RQ12:	Yes	Yes	Yes
RQ13:	No	No	Yes
RQ14:	Yes	Yes	No
RQ15:	No	Yes	Yes
RQ16:	Yes	Yes	Yes
RQ17:	Yes	Yes	Yes
RQ18:	Yes	Yes	Yes
RQ19:	Yes	Yes	No
RQ20:	Yes	Yes	Yes
RQ21:	Yes	Yes	Yes
RQ22:	Yes	Yes	Yes
RQ23:	Yes	Yes	Yes
RQ24:	No	Yes	No
RQ25:	No	No	Yes

Table :4.2 Analysis of requirements in different MB^{SNA}

Matrix Representation between requirements & MB^{SNA}

Parameters	Facebook (x1)	WhatsApp (x2)	Telegram (x3)	Weightage (w)
RQ1:	0	1	0	1
RQ2:	1	1	1	3
RQ3:	1	1	1	3
RQ4:	1	1	1	3
RQ5:	1	1	1	3
RQ6:	0	1	1	2
RQ7:	0	1	1	2
RQ8:	1	1	1	3
RQ9:	1	1	1	3
RQ10:	1	1	1	3
RQ11:	1	1	1	3
RQ12:	1	1	1	3
RQ13:	0	0	1	1
RQ14:	1	1	0	2
RQ15:	0	1	1	2
RQ16:	1	1	1	3
RQ17:	1	1	1	3
RQ18:	1	1	1	3
RQ19:	1	1	0	2
RQ20:	1	1	1	3
RQ21:	1	1	1	3
RQ22:	1	1	1	3
RQ23:	1	1	1	3
RQ24:	0	1	0	1
RQ25.	0	0	1	1
Total	18	23	21	62

Table:4.4 Comperative Evaluation of MB^{SNA}

The given designed tabular responses are prepared on the basis of either the given requirement exist or not, these are answered in yes or no format by taking the survey through different 500 end users. In this the requirement is classified as resulted of yes or No reply from survey. For this Yes/No responses we use 1 or 0 indicator. As it can seen, we have give a

weight to each requirement, where every requirement have the highest weight as 3 and lowest weight as 0. On the foundation of **Consideration on the basis of the requirements in the MB^{SNA}**

Indicator used:

Yes-> 1

No-> 0

Degree of requirement parameters(DRP) in mobile apps can be calculated using following formula:

$DRP = \sum x_i w_i$ for i=1,2,3,....n

Where,

x is individual apps

w is maximum weight of individual requirement for Mobile App

Evaluation of Original Degree:

By using the above mentioned formula the original degree can be evaluated as below-

Original DRP= $x_1*w + x_2*w + x_3*w$

=18*62 + 23*62 + 21*62

rquirement weight we can arrange that which requirement have the highest urgency and which one has mediam or low urgency.

=3844

= Total weight of mobile Application

Calculation of highest degree that is represented in the form of % level

% level = 3844 / 75*75

=68.33

The % level is used to decide that no DRP can be beyond this level i.e. 68.33% is the highest degree of each requirement parameter and no social network app used in this survey cannot be greater than this value. As we can see that the calculated % of each MB^{SNA} have different percentile level as 72% , 92%, 84% for Facebook, Whatsapp, Telegram respectively.

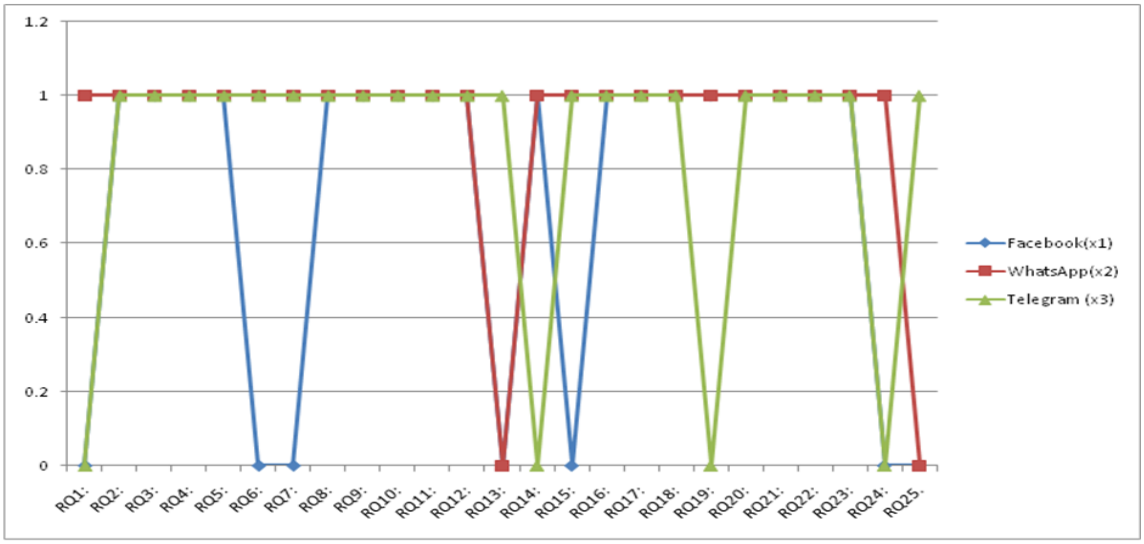
Evaluation of Original Degree:

Comparison through calculating % of each application	**Facebook**	**Whatsapp**	**Telegram**
	72%	92%	84%

Acceptance or validation:

	Facebook	**Whatsapp**	**Telegram**
P value =	18/25 * 68.33/100 = 0.4919	23/25 * 68.33/100 =0.6286	21/25 * 68.33/100 =0.5739

Result through Graphical representation between Requirements and



MB^{SNA}: GRAPH REPRESENTATION FOR MOBILE APP WITH RESPECT TO REQUIREMENTS PARAMETERS

Fig:4.2 Graph Representation For Mobile App With Respect Requirements Limits

The individual p value of the mobile app is calculated for Facebook messenger is 0.49,
For Whatsapp is 0.62 and Telegram is 0.57
Since the p value of Whatsapp is high hence we conclude that it is most popular mobile app for requirement elicitation with respect to gathering the crowd.

As we can see the consequences from graphical symbol where blue diamonds are indicator of Facebook, maroon square shapes are indicator of Whatsapp and the green triangle shapes are indicator of Telegram social networking mobile apps. By seeing the weight of different applications in this survey, we can conclude that the most popular mobile social networking app is Whatsapp by comparison of their utilization o the basis of their different features where rest are less uses as compare to this app. As a result we can say that Requirement elicitation can be easily done by using the different social networking sites as they are the real factors for empowering the crowd of the stakeholders/ end users.

In future, we are expecting the use of more intelligent techniques towards requirement engineering such as requirement elicitation using the social network applications etc. We are also investigating the application of different social networking features which can incorporate various elicitation techniques so that the emerging crowd can be engaged in it. Intelligent techniques can be used to discover ranking factor between different social networking apps for the same requirement and inconsistencies in various artifacts of requirement modeling. Similarly formally specified requirements can be used to effectively determine inconsistencies using intelligent approaches such as ant colony techniques.

A detailed and through analysis of various requirement classification factors need to be

performed. The classification factors identified in this thesis are outcome of a scholarly debate for the purpose of this thesis. However, there is need to formulate a framework to determine appropriate classification factors for various types of software products or services. For example, it is quite significant to study the inclusion of usability and user experience of each requirement as classification factor since most of the users are mainly affected by touch and feel of the system before they get affected by functionality.

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