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SOFTWARE REQUIREMENTS SPECIFICATION FOR WHATS APP

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1. Introduction  
     
   1.1 Purpose  
   This document describes in substantial detail, the software requirements of WhatsApp, an online instant messaging application. This document will describe the problems WhatsApp intends to address, the functional requirements and non-functional requirements of the proposed system.  
   1.2 Document Conventions:  
   Font: TNR 12  
   1.3 Intended Audience and Reading Suggestions  
   This document is intended for the stakeholders of the application, to assist in the development process of WhatsApp as well as to serve a reference to clarify any future issues that the stakeholdersmay run into.  
   1.4 Definitions, abbreviations  
     
   1.4.1 Definitions  
     
   Account  
   A User must have a device on which he can run the Application. Device can either run on Android,IOS, Blackberry, Windows or Symbian. User Account is linked to the contact information he provided during the initialization of the application. User can be contact only with that information.  
   Last Seen, Profile Picture, Status, Receipts  
   User can put up a profile picture to indicate his appearance. Last seen of a user indicates the last point in time when the user used the application. Status indicates the written statement abouthimself or his state or mood depending in the usage to all his recipients. Receipts indicate the statusthe message sent to any recipient. Single receipt indicates that the message has been sent from the user end. Double receipt indicates that the message has been received by the other party.

Network Usage  
In order to enjoy seamless benefit of WhatsApp, User is supposed to be connected to Internet at anygiven point of time. WhatsApp uses considerably lesser network resources than any other chattingapplication available in the market. WhatsApp also provides the user with the option to limitresources to incoming media.  
Recipient  
WhatsApp can be used to converse with more than a single user at any given point of time. Therecipient must also use the application on the other end of the conversation. The Contactinformation to which the Whatsapp Account is linked is to be saved in the user contacts in order tostart a new conversation with the recipient.  
Group  
A Group of users ranging from 1-256 can be added into a group and can be conversed with at thesame time. Any group user can add new members into the group not exceeding 150. Only the GroupAdmin has the executive permissions to remove a member of the group. Group admin can also provide other members of the group with Admin permissions.  
Broadcast Messages  
A user can broadcast same message to 1-150 user at the same time with the broadcast option. Userswith his contact information can only receive the message.  
Privacy  
Whatsapp provides seamless ways to save the users privacy. User can decide which information isavailable for other users to view and which information isn’t.  
Information like Last seem, ProfilePicture, Status can be put out for view to everyone or only to contacts or no one.  
Backup  
An Encrypted Backup of all the conversations is saved in Internal Memory in case of an Androiddevice, BlackBerry devices and in Cloud in case of an iOS device. Backup is encrypted in order toavoid misusage of the metadata of the Application.  
1.5 Project Scope  
WhatsApp is a proprietary, cross-platform, encrypted instant messaging client for smartphones. Ituses the Internet to send text messages, documents, images, video, user location and audio messagesto other users using standard cellular mobile numbers .As of February 2016, WhatsApp had a user base of one billion, making it the most popular messaging application. WhatsApp Inc., basedin Mountain View, California, United States, was acquired by Facebook Inc. on February 19, 2014,for approximately US$19.3 billion.

1. Overall Description  
     
   2.1 Product Perspective  
   WhatsApp does not work independently. It works together with the internal servers and sending andreceiving application on either end devices.  
   Communication interface:  
   WhatsApp communicates with the internal servers via acommunication network.  
   Software interface:  
   The messages sent via the communication network are specific to the targetrecipient. At any point, two known users will participate in the application.  
   Hardware interface:  
   The software will run on any device running on iOS, Android, Symbian,BlackBerry operating systems.  
   User interfaces:  
   The GUI of the Application is user friendly and need no external assistance tounderstand the application.  
   Customer:  
   The customer user interface should be intuitive, such that 99.9% of all new WhatsAppusers are able to use the Application without any assistance.  
   Message Processing:  
   Every message send through the application is processed by the internalservers and sent to the recipient. Message processing is done at very high processing rates so as toavoid delay in the conversations between the users. A maximum of 27 billion messages are processed in a single day by WhatsApp internal servers.  
   2.2 Product Features  
   WhatsApp should work 24 hrs. The Application on a smartphone is linked to a single user account.It collects information about a simple account transaction (e.g., sent messages, received messages,media transfers, and network usage), communicates with the internal severs for message processingand delivers the message to the recipient in time to receive their reply. WhatsApp provide their ownsoftware for their own servers. The internal server software requires appropriate record keeping andsecurity provisions. The software must handle concurrent accesses to the same user correctly.
   1. User Classes and Characteristics  
        
      Characteristics:  
      There are several users of the WhatsApp network:  
      Customers  
      are simple members of the general public with no special training.  
      2.4 Operating Environment  
      The hardware, software and technology used should have following specifications:Ability to run the Latest Version of Application.Ability to use Network resourcesTouch screen for convenienceKeypad (in case touchpad fails)Continuous power supply and network supply Ability to connect to WhatsApp networkAbility to take input from userAbility to validate user  
      2.5 Design and Implementation Constraints  
       Login  
      Validate User:  
       Validate for Users Mobile Number by Verification SMS.Check for any previous existing User Backups on the device.If a Backup is available, prompt  
      to “Restore Backup”  
      2.6 Assumptions and Dependencies  
       Hardware never failsAlways connected to the InternetUnlimited number of messages per dayUnlimited number of changes to profile per day  
      3. Specific Requirements  
         
      3.1 Functional Requirements  
       The functional requirements are organized in two sections First requirements of the application onany device and second requirements of the network resource to connect to the internal servers ofWhatsApp.  
      3.1.1 Requirements of WhatsApp  
       The requirements for the working of WhatsApp Application are organized in the following wayGeneral requirements, requirements for authorization, and requirements for a transaction

Functional requirement 1:  
  
Description:  
If the application on any device is not connected to the Internet, the systemshould display initial display.  
Functional requirement 2:  
  
Description:  
Send a messagefunction sends a text message to another user of app.   
Inputs:  
Inputs are characters, including numbers and the receiver contact from contact list.(Name of the receiver in this case)

Processing:

Reads the message from the buffer, stores it in the sender`s device DB, pass it tothe ProcessingCentral DB and passes the message to receiver and stores it in the receiver`s device DB.Sender then gets indication of receiving the message by the receiver and indication ofreading the message by the receiver. (Sender gets mark on the message when receiver getsthe message and double mark when receiver opens the message)   
Outputs  
: Mark at the sender`s side– when receiver gets the message in his device. Double mark at the sender`s side–   
when receiver opens the message.The message itself– stored in Central DB, Stored in the sender`s and the receiver`s devisesDB for history. Notification at sender`s side if the message wasn`t transferred toreceiver.   
Functional requirement 3:  
  
Description:  
User Registration  
User is able to register for the application through a valid phone number. On installing the application, user must be prompted to register their phonenumber. If user skips this step, application will close. The user’s phone number will be theunique identifier of his/her account on WhatsApp.  
Functional requirement 4:  
Description:  
Adding New ContactsThe application is able detect all contacts from theuser ’s phone book. If any of the contacts have user accounts with WhatsApp, those contactsmust automatically be added to the user ’s contact list on WhatsApp. If any of the contactshave not yet registered on WhatsApp, user is provided with an invite option that sends thosecontacts a regular text message asking them to join WhatsApp along with a link to theWhatsApp application on Google Playstore or respective store depending on the Operatingsystem the device is running.

Functional requirement 5:  
  
Description:Send Message  
User is able to send instant message to any contact on his/herWhatsApp contact list. User will be notified when message is successfully delivered to therecipient by displaying a tick sign next to the message sent.  
Functional requirement 6:  
  
Description:  
Send Attachments  
User is able to send audio, video and images as attachments.Audio formats that the application should support: mp3, wav.Video formats that the application should support: avi, mp4, flv, gif.Image formats that the application should support: jpeg, png.  
Limitations:  
File size must not exceed 2MB per message.  
Functional requirement 7:  
  
Description:  
Broadcast Message  
User is able to create groups of contacts. User is able to broadcast messages to these groups.  
Limitations:  
The recipient should have the sender in his contacts to receive the broadcast.  
Functional requirement 8:  
  
Description:  
Message Status  
User is be able to get information on whether the message senthas been read by the intended recipient. If recipient reads the message, 2 ticks will appearnext to the message read.  
Functional requirement 9:  
  
Description:  
Auto Backup  
User is able to have all his messages backed up on Cloud orInternal Storage without ever being prompted. User has the choice of setting the frequency by which the backup can be made.  
Functional requirement 10:  
  
Description:  
The Application should be able to connect to Internet automatically eventhough the application isn’topened by the user. The Application should stay connect tointernet at every point of time if the network resources are available on the contacts list of the device, the synchronization executed and new contact added (if newcontact has messenger).   
Outputs: WhatsApp messenger contact list.   
3.1.2 Requirements of the Application  
  
Authorization  
The internal servers gets a request from a User account to process and send a message to a recipient.  
Functional requirement 1:  
  
Description:  
Internal servers checking if the user is authentic.  
Input:  
Request from the application about it authenticity  
Processing:  
Check if the application is a valid application or not  
Output:  
Valid or invalid application  
Functional requirement 2:  
  
Description:  
If the application is updated or not  
Input:  
Application Version  
Processing:  
Process Application Version  
Output:  
The Application gets the message“Update”if it’s  
an older and unsupportedapplication version.  
Functional requirement 3:  
  
Description:  
The Application checks for user data after every update.  
Input:  
Check internal encrypted backup for user data  
Processing:  
Check User Data  
Output:  
Accepts User data or prompts to register again.

Functional requirement 4:  
   
Description:Changes in encryption codes  
Processing:  
Checks for changes in security encryption code  
Output: Prompt regarding encryption changes  
4. External Interface Requirements  
   
4.1 User Interfaces  
 The customer user interface should be intuitive, such that 99.9% of all new Applications are able tocomplete their transactions without any assistance  
4.2 Hardware Interfaces  
 The hardware should have following specifications:Ability to run the Latest Version of Application.Ability to use Network resourcesTouch screen for convenienceKeypad (in case touchpad fails)Continuous power supply and network supplyAbility to connect to WhatsApp networkAbility to take input from userAbility to validate user  
4.3 Software Interfaces  
 The software interfaces are specific toa proprietary, cross-platform, encrypted instant messaging client.

5. Other Nonfunctional Requirements  
  
5.1 Performance Requirements  
It must be able to perform in adverse conditions extremely slow internet connections andlow battery on device.Uninterrupted connectionsHigh data transfer rate  
5.2 Security Requirements  
WhatsApp provides encryption so as to prevent unauthorized access to a message midway. It use256-Bit SSL encryption to secure data between two users.  
5.3 Software Quality Attributes  
  
5.3.1 Availability:  
The WhatsApp internal Server has to be available 24 hours a day.  
5.3.2 Security:  
The Application should provide maximal security in order to make that much moretransparent there are the following requirements:It must be impossible to plug into the internal server network.  
5.3.3 Maintainability:  
Only maintainers are allowed to connect into internal servers.  
6. Application Analysis  
Now a days the applications are available for messaging but there is not a single application whichcan handle multiple things like messaging, privacy, location sharing, broadcasting, group messages,file sharing etc...   
6.1 User Side  
No Hidden Cost Multimedia :- (Send Video, Images, and Voice notes to your friends and contacts)

No need to Log In/Out

No need to add Buddies

Record voice messages.

Know when people have seen your messages.

Status Update

As Open As SMS And Much More (Share location, Exchange contacts, Custom wallpaper, Email chat history,Broadcast messages)  
6.2 Developer Side  
  
Hardware Requirements  
(Recommended): 60 GB HD Android Phone (optional)I-3 or above processor 2 GB RAM  
Software Requirements:  
Operating System: Windows XP or above, LINUXSoftware: Mobile IDE Plugins Development Tools: Android SDK Database: SQLite Minimum requirement API-13  
7. Feasibility Study  
  
7.1Technical Feasibility: System will work on android mobile or tablet which requires android 2.1and up version. Easy to develop application using open source.  
7.2 Economic Feasibility:  
This application is developed using open source software. So, there arenot any issues related to development tools. After develop this application, we will put it on Google play which is also an open source so user can easily download.

7.3 Operational Feasibility:

 The system will be GUI based so the user will easily understand andno need for training. The system will give fast response. It’s a faster way to communicate.

8. Other Requirements  
  
8.1 Data Base  
The Application must be able to use several data formats according to the data formats that are provided by the data bases. A transaction should have all the properties of a data base transaction(Atomicity, Consistency, Isolation, and Durability)