Project Final Report

ON Boarding Enterprise Mobile APP

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1. Executive Summary

1.1

1.2 Project Overview

The idea of the project is to develop an agnostic flexible app that can be pushed to the end user to "OnBoard" new hires into Continental. Our intended audience are the employees of Continental. Our app provides a 'PeerBuddy' module that associates a new hire to a current employee leading to an engaging collaboration at Continental.

1.3 Purpose and Scope of this Specification

'PeerBuddy' is an employee, who is willing to volunteer to assist a current employee or new hire in every aspect ranging from office to personal things.

In Scope

Assigning Peerbuddy to new hires:

HR Manager can assign a new hire to a peer buddy volunteer based on match heuristic percentage that is calculated on location, job title, department and interests. The HR can also view already assigned peer buddies for a current employee.

New hire profile Updation:

New hire can update their interests using the android app and they also have an option to become a peer buddy volunteer.

Finding peer buddy:

New hire can see assigned peer buddies. Our application will recommend peer buddy volunteers to new hires based on match heuristic percentage. A new hire can also manually search for peer buddy volunteers.

2. Product/Service Description

2.1 Product Context

The product consists of mainly 2 parts, "The Admin Panel" and the "Mobile Application". These two are relatively independent modules as these will be used by different sections of employees of the Continental Team. The Admin Panel is developed seeing Administrators and the HR resources whereas the mobile application is for the other employees of the Continental Group. But both of these point to the same datasource and same web application which is how they are related.

2.2 User Characteristics

Create general customer profiles for each type of user who will be using the product. Profiles should include:

- HR Manager/HR Admin

HR Manager/HR Admin of the Continental is the user Admin Panel Web application.

- New Hire

New hires of Continental are the targeted users of Mobile Application.

- Current Employee

Current Employee of Continental is a user of Mobile Application.

2.3 Assumptions

Various resources that are required to use the product smoothly are:

- A web Browser such as Google Chrome, Mozilla firefox
- An Android Mobile in order to install the Android Application
- Basic Knowledge on how to use the Android Application
- Basic Knowledge to use Web Browsers
- A Server is required to host the Web Application

2.4 Constraints

Describe any items that will constrain the design options, including

- HR and Admin should only be able to login to the Admin Panel
- Employees should be able to login to the mobile Application

2.5 Dependencies

List dependencies that affect the requirements. Examples:

- The entire system is dependent on Web Server that needs to be hosted.

3. Requirements

Priority Definitions

The following definitions are intended as a guideline to prioritize requirements.

- Priority 1 – The requirement is a "must have" as outlined by policy/law
- Priority 2 – The requirement is needed for improved processing, and the fulfillment of the requirement will create immediate benefits
- Priority 3 – The requirement is a "nice to have" which may include new functionality

It may be helpful to phrase the requirement in terms of its priority, e.g., "The value of the employee status sent to DIS **must be** either A or I" or "It **would be nice** if the application warned the user that the expiration date was 3 business days away". Another approach would be to group requirements by priority category.

3.1 Functional Requirements

Req#	Requirement	Priority	Date Rvwd	SME Reviewed / Approved
BR_01	HR Manager/HR Admin should be to login/logout to the admin panel web application	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_02	HR Manager/HR Admin should be able to see list of hires in peer buddy modules	1	3/10/2017	
BR_03	The web application system should recommend a list of peer buddies for each new hires based on Job Title, department,location,Interests	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_04	HR Manager/HR Admin should be able to assign peer buddies to a new hire	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_05	HR Manager/HR Admin should get a notification after assigning a peer buddy to a new hire	2	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_06	HR Manager/HR Admin should be to see the list of assigned peer buddies for each new hires	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_07	New hire/Employee should be able to login/logout to the Android mobile app	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell

BR_08	New hire/Employee should be to navigate to Profile page from home screen	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_09	New Hire/Employee should be able to update his/her interest from list of interest defined by HR admin/HR Manager from the profile screen	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_10	New hire/Employee can be a peer buddy by clicking a checkbox in profile page	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_11	Show toast message for interest updating and peer buddy checkbox selection	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_12	New hire/Employee should be able to navigate to peer buddy screen from home screen	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_13	New hire/Employee should be able to see the assigned peer buddies in the peer buddy screen by default	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_14	New hire/Employee should be able to see assigned pee r buddies by clicking 'My Assigned buddies' menu	1	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_15	New hire/Employee should be to see the recommended peer buddies from View All peer buddies Menu	1	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_16	View all peer buddies should result should show a matching score(Progress bar) based on logged in user job title, department location and interest	1	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_17	New hire/Employee should be able to see search based on interest	1	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_18	Peer buddy search based on search interest search should show a matching score(Progress bar) based on the searching interest.	1	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_19	New hire should be able to contact a peer buddy by clicking on phone ,Email icon in peer buddy profile page	1	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell

BR_20	The system should allow new hires to send peerbuddy request	2	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_21	The new hire should be able to add their own interest to the system rather than choosing the interest defined by admin.	2	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_22	Add Gamification module to the mobile app to make it more user friendly and interactive.	2	25/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_LR_05	The system should associate a supervisor indicator with each job class.	Business Process = "Maintenance	3	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_LR_08	The system should handle any number of fees (existing and new) associated with unions.	Business Process = "Changing Dues in the System" An example of a new fee is an initiation fee.	2	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennellr
BR_LR_10	The system should capture and maintain job class status (i.e., active or inactive)	Business Process = "Maintenance" Some job classes are old and are no longer used. However, they still need to be maintained for legal, contract and historical purposes.	2	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_LR_16	The system should assign the Supervisor Code based on the value in the Job Class table and additional criteria as specified by the clients.	April 2005 – New requirement. It is one of three new requirements from BR_LR_03.	2	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_LR_18	The system should provide the Labor Relations office with the ability to override the system-derived Bargaining Unit code and the Union Code for to-be-determined employee types, including hourly appointments.	April 2005 – New requirement. It is one of three new requirements from BR_LR_04. 5/11/2005 – Priority changed from 2 to 3.	2̶ 3	3/10/2017	Mohsen Dorodchi, David Devore, Wayne Pennell

3.2   User Interface Requirements

3.3   Usability

Mobile App and HR Web portal is designed in consistent with daily usage apps, so actions to be performed will be obvious.

3.4   Performance

Performance of the app is expected to be good once deployed in Amazon AWS as AWS gives the feasibility to adjust hardware and network requirements according to requirements

3.4.1   Capacity

Capacity of the load should that the entire system should be able to support the load of entire Continental Employees using at once as the maximum. Proper load test can be done after Production Deployment to AWS.

3.4.2   Availability

Include specific and measurable requirements for:

- Should be available 24 hours
- Available for use at all times at locations when required by a Continental Employee
- Web Application should be down only during non regular office hours as Admins and HR may be dependent on this application especially when new Joinees are there in the application
- Impact of the service being down might affect HR/Admins in carrying out their regular tasks with regard to Joining process of an Employee

3.4.3   Latency

Its' a standard to return back all requests in under two seconds. But this is not classified as a law or requirement.

3.5   Manageability/Maintainability

3.5.1   Monitoring/Maintenance/Operations

When Application is deployed in AWS. We can make use of Amazon Cloud watch for Monitoring, Maintenance and Operations purpose.

CloudWatch can collect and monitor log files, set alarms, and automatically react to changes in AWS resources. Amazon CloudWatch can monitor AWS resources such as Amazon EC2 instances, Amazon DynamoDB tables, and Amazon RDS DB instances, as well as custom metrics generated by your applications and services, and any log files your applications generate. we can use Amazon CloudWatch to gain system-wide visibility into resource utilization, application performance, and operational health. we can use these insights to react and keep your application running smoothly.

3.6   System Interface/Integration

3.6.1   Network and Hardware Interfaces

Specify the logical characteristics of each interface between the product and the hardware or network components of the system. This includes configuration characteristics (e.g., number of ports, instruction sets), what devices are to be supported, and protocols (e.g., signal handshake protocols).

The entire product can be classified into 3 main Categories, the BackEnd Server built on Node JS, FrontEnd Server built on Angular JS and the mobile Application based on Android.

Node JS is configured to use port 5800 in the Network.

Angular JS is configured to use port 4200 in the Network.

The Android Application only need a proper Internet Connectivity.

3.7   Security

3.7.1   Protection

Specify the factors that will protect the system from malicious or accidental access, modification, disclosure, destruction, or misuse. For example:

● Every user will have a username and password in order to access the system.
● All passwords are encrypted and hashed and then stored in database so as to protect from attackers stealing away the raw data.
● Hashing here is salting and hashing. Reason being hashes of same passwords are same and they much easier to crack. Adding salt to a password and then hashing the result reduces the chance of having duplicate hashes.
● When going into production, a SSL certificate will be used to ensure all web traffics goes through HTTPS.
● Hosting are done in AWS EC2 instance which has state of the art Security features already embedded in it.

Implementation Description:

Creating and storing Password:

- Take the user password
- Generate a salt(String of random characters)
- Combine the salt with the user entered password
- Hash the combined string with a suitable cryptographic algorithm.
- Store the result as the password and also store the salt along side.

Validating user password:

- Validating user password
- Validate the username and fetch the hashed result and salt from the database
- Combine the user entered password with the salt stored for that user.
- Hash the combined string with the same cryptographic algorithm used at the time of creating user.
- Compare the result with the stored hash.

3.7.2   Authorization and Authentication

All Authorizations are made using OAuth. When the user is logged in using the username and password a token will be generated for the user which is sent back in the response. The user will need to request that token for all subsequent request in order to verify their validity. This is applicable for both Web Applications as well as Mobile Applications.

3.8   Data Management

Specify the requirements for any information that is to be placed into a database, including

- Details of all the employees in the Continental
- Two Access Rules - Admin/HR and Employees portal
- Frequency of the use depends on the number of employees. When there is a high joining rate, the usage may go up. At other times it can even be idle.
- Initially an user with administrative Access will be created with username - admin@conti.com and password - admin@123. This user may be deleted or password updated by the administrator.

3.9   Standards Compliance

All the data rights and the permission of the usage of applications rest with Continental and its employees.

3.10 Portability

When it goes to production everything will be hosted in AWS which will be a cloud service. Therefore Portability won't be an user thereafter.

4. User Scenarios/Use Cases

A Newly joined Employee in Continental wants his User Account set up so as to use the Employee Services of the company. For this the Admin should be able to create the user Account, and the HR should be able to add the basic Employee details.

The Employee should be able to contact other Peers of the company so that he will get accustomed to the culture of the company. Module like Peer Buddy should do that.

Employee should be able to search new employees by name, interests, department, location or any other relevant information that is important in Continental.

Employees should be then able to Contact or Message or Chat with the employees through the Continental Server.

The business need of the app is to get to know each other so as to promote and instill Continental Culture and Spirit among all employees. This is a very important requirement especially for any business Organization like Continental where the number of Employees are so much.

Use Case Diagram for a New Hire:
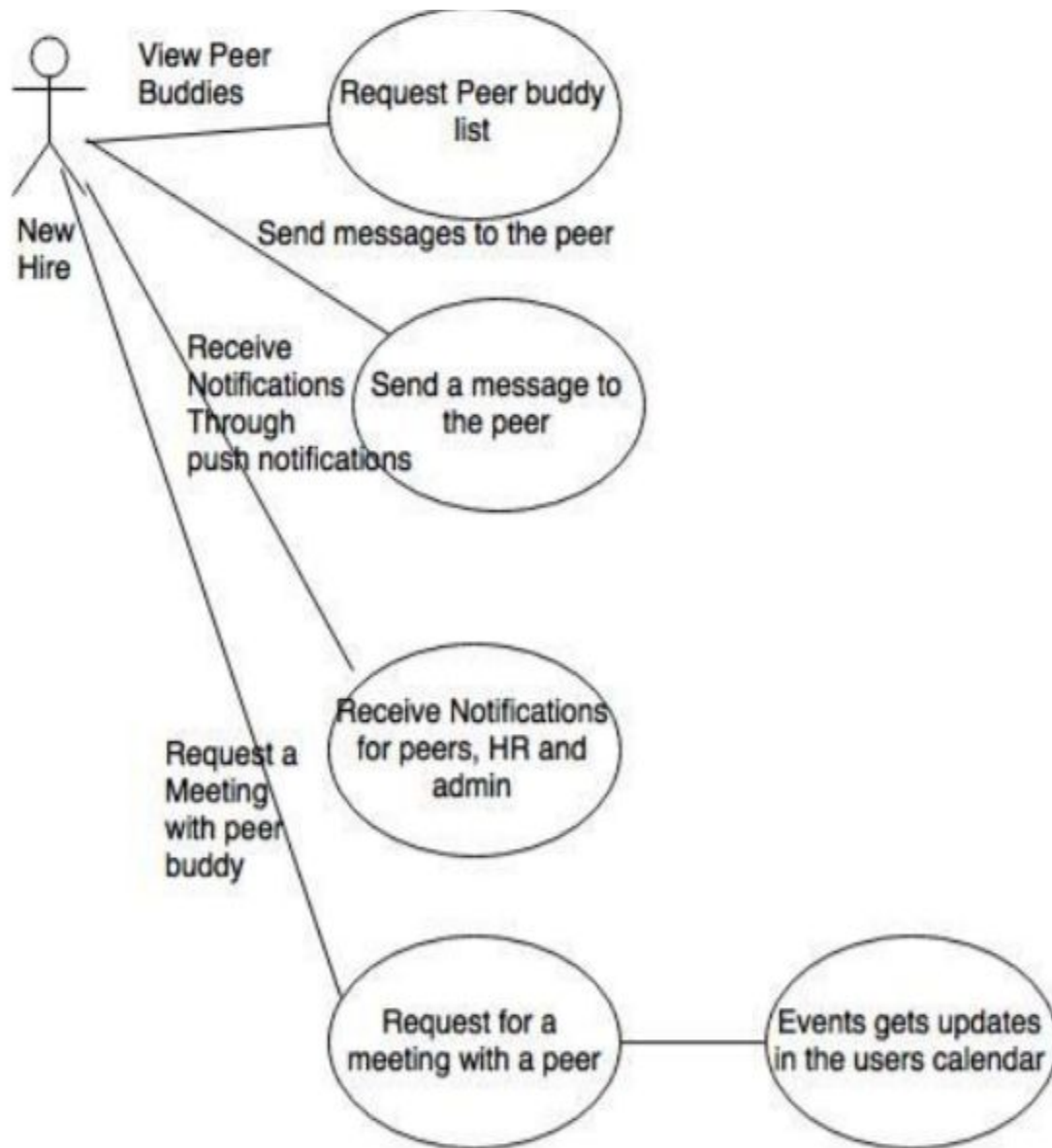
5. Deleted or Deferred Requirements

Identify any requirements that have been deleted after approval or that may be delayed until future versions of the system. For example:

Req#	Business Requirement	Status	Comments	P ri	Date Rvwd	SME Reviewed /Approved
BR_LR_0 1	The system should allow new hires/ current employee to schedule an appointment with peer buddy	Deferred	Not able to accomodate in version 1 due to low bandwidth	1	9/13/14	Bob Dylan, Mick Jagger
BR_20	The system should allow new hires to send peerbuddy request	Deferred	Not able to accomodate in version1. Currently request are through sms, email and phone call	2	9/13/14	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_21	The new hire should be able to add their own interest to the system rather than choosing the interest defined by admin.	Deferred	low priority due to company policy issues.	3	9/13/14	Mohsen Dorodchi, David Devore, Wayne Pennell
BR_22	Add Gamification module to the mobile app to make it more user friendly and interactive.	Deferred	Cannot accomodate in the current version due to low bandwidth	1		Mohsen Dorodchi, David Devore, Wayne Pennell

6. Requirements Confirmation/Stakeholder sign-off

Include documentation of the approval or confirmation of the requirements here. For example:

Meeting Date	Attendees (name and role)	Comments
3/10/17	Wayne Pennell, Technical Analyst Mohsen Dorodchi, Professor David Devore, Corporate Training Manager	Confirmed: BR_01, BR_02,BR_03, BR_04, BR_05, BR_06,BR_07, BR_08, BR_09, BR_10, BR_11,BR_12,BR_13, BR_14,BR_15, BR_16,BR_17, BR_18, BR_19. Requirements listed with numbering mentioned above are approved because

		those are the basic requirements in peer buddy module
11/11/17	Mohsen Dorodchi, Professor David Devore, Corporate Training Manager Wayne Pennell, Technical Analyst	Deferred / Deleted: BR_LR_01, BR_20,BR_21,BR_22 These numbered requirements have been postponed due to low bandwidth

APPENDIX

Appendix A. Definitions, Acronyms, and Abbreviations

Define all terms, acronyms, and abbreviations used in this document.

Node JS:

Node.js is an open-source, cross-platform JavaScript run-time environment for executing JavaScript code server-side.

Angular JS:

AngularJS is a JavaScript-based open-source front-end web application framework mainly maintained by Google and by a community of individuals and corporations to address many of the challenges encountered in developing single-page applications.

Mongo DB:

MongoDB is a free and open-source cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with schemas.

Appendix B. References

https://docs.mongodb.com/v3.4/

https://nodejs.org/en/docs/

https://developer.android.com/guide/index.html

https://docs.angularjs.org/guide/concepts