Faculty of Information Technology

University of Palestine

Taxi Office Applications

Submitted by :
Yousuf S. Al Nijme
Mohammad S. Al Okaily
Ahmed Nada

Supervised by :
Dr. Ebrahim Tabash

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Abstract

Control system for the Office of Transportation and through the management of resources, office management accounts and administrative processes in the office, also a trace of the car to the office, that save time and provide tracking place to be reached through GPS to facilitate the process and the arrival of the car needed to place. we used waterfall model to develop the system because we have a clear and well understood requirements. This system has been tested and evaluated to prove that all functional and non-functional requirements working as assumed to be. Finally in the future this system can be enhanced by develop the application to work on other mobile platforms such as IOS and windows phone.
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CHAPTER 1
INTRODUCTION

1.1 Background

Nowadays mobile has become very important in our daily life. It does not depend on communication between people, a lot of developments have been made on the mobiles which leads to facilitating access to the web. Also the Mobile Web refers to access on the World Wide Web, i.e. the use of browser-based Internet services, from a handheld mobile device, such as a Smartphone, a feature phone or a tablet computer, are connected to the mobile network or other wireless network.

System taxi rents cars on a temporary basis to based customer contacted the office and the Bureau shall send a car to the customer delivers the desired place and be the application process manually, the process of managing the office of affairs in terms of sending cars to customers, management of customer accounts and financial matters in terms of paper and by traditional.

We also use the internet technology through building a website that allows customer to Order taxi, and also we use android platform to allow admin to manage system through their smartphones.
1.2 Motivation for the Research

The widespread and observed for Smartphone in the world and especially in the state of Palestine. So we want to exploit this common technology to give more ways and to employ it to solve some of the most important problems that facing the institutions and companies to accelerate some of their tasks and communicate with individuals. Skills and abilities available in the team help us to build a web based application and an android application performs sending messages and helps the companies to connect with customers.

1.3 Problem Statement

There are several problems exist with institutions and companies to communicate with people, and the most common problems which is the cutting off electricity, and the difficulty of the arrival of the car to the desired location, that can make a lot of breakdown problems through accessing with customers, also the office need to send taxi and the variety of their needs for individuals and companies.

1.4 Research Questions

In relation of the problem statement, this study aims to investigate the following:
How will this study facilitate easily deliver cars to customers anytime and anywhere?
How will this study facilitate manage office taxis anytime and anywhere?

1.5 Research Objectives

This study aims to achieve the following:

1 To develop a web based and an android application used them to manage office taxi.
2 To evaluate the web based and android application that perform office taxi.
1.6 **Significance of the Research**

This project contribute in solving the problem of manage office taxi's system the application of smart devices which allows whether individuals, companies and institutions to Taxi customers to deliver anywhere and anytime, This application works on helping manager office's to deal with the program to communicate with others. Also allow the employer to communicate with their employees by manage office and Car Rental managing applications and data management.

1.7 **Scope of the Research**

The web based application is limited to work on web browsers and must establish an internet connection to work it out, and the mobile application is limited to run on smart phones that using an android operating system.
CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter summarizes some Definitions and Concepts, and shows study Usability Evaluation and study customer Evaluation. At the end, it gives a brief summary for this chapter.

2.2 Taxi Office system

The normal process of contacting the customer with the office to send the taxi to the place, who is to be done for the customer is connected to, the place where the customer wants to go to him, and sometimes is used a long ways to reach the customer or have difficulty accessing the customer to be plugged.

2.3 New Taxi Office system

integration of technology in the office management system through the provision of time and provide accurate management operations office in terms of managing accounts and relationships with customers and control process and provide technical cars to facilitate the arrival of the car to place the customer as soon as the roads through and also GPS by showing the operations of the office staff alarm in the event of a new customer contact and display customer data to provide a process of communication with the customer.
2.4 Brief History

System Car Rental grew through the customer needs on private cars, but the inability of the customer to buy a car of his own for the renting of private cars to customers at a nominal price and also provide special features for customers connect customers without the problems of cars such as faults by car or oil prices.

2.5 CLASSIFICATION OF MOBILE TECHNOLOGIES

There are many different kinds of technology that can be classed as ‘mobile’. Mobile, to most, means ‘portable’ and ‘movable’. It also seems to implicate a ‘personal’ as opposed to ‘shared’ context of use, and the terms ‘mobile’ and ‘personal’ are often used interchangeably – but a device might be one without necessarily being the other.

We can classify the range of mobile technologies using the two orthogonal dimensions of personal vs. shared and portable vs. static, these kinds of devices are what people most commonly think of in relation to mobile technologies: mobile phones, PDAs, tablet PCs and laptops. It also includes hand-held video game consoles, with Rosas et al (2003) and Lee et al (2004) reporting on early evaluations of their educational use. Since these devices normally support a single user, they are generally perceived as being very personal. The networked nature of such devices affords communication and information sharing, meaning that while the devices themselves are personal, the information within them can be shared easily. These devices are portable because they are taken from place to place and hence they can be
available in many different locations. These are personal portable technologies.

2.6 Data Connection Improvement

A few good articles have already been written which describe how to connect to a database in web-based applications. Basically, there are three different ways currently used by developers for ASP script to connect to a database: DSN connection, DSN-less connection and OLE-DB connection.

Most of the articles suggest the DSN system connection due to its advantages. It's considered as the fastest way since all the information resides on the server and need only be validated when the DSN is setup. DSN-less connection, however, is suggested only if a DSN is not available because the server must validate the connection information each attempt in DSN-less. Microsoft's MSDN site suggests using system DSNs instead of file DSNs or DSN-less DSNs. However, the tests that Microsoft conducted and therefore rerun in this conclusion from were a long time ago and needed to be run. So far, there is no formal experimental report for data connection performance from Microsoft. Carroll also declared this is the fastest way since all the information resides on the server and need only be validated when the DSN is setup.

However, some developer's debate that DSN-less connections have better performance since it is easy to change the provider from the generic one for ODBC to a native driver when it became available. Brian Francis and his co-authors (Francis et al. 1998, (1)) regard DSN-less connection as having the
convenience of moving data from a web server to another machine since no configuring of the new server is required, he indicates that there is no extra charge for a new configuration. Furthermore, some experiment conducted by Sussman and Homer for DSN and DSN-less connections show that DSN-less is slightly faster than DSN. The increase in performance was really insignificant; the most significant performance was just 13% faster with 64 concurrent requests. No noticeable improvement is observed in a DSN-less connection over a System DSN until there are 10 or more concurrent connections.

Connection Pooling can also bring significant performance improvement for ASP applications. In his article, (J. D. Meier Meier 1999, (12)) emphasizes that connection pooling can dramatically improve performance since establishing a connection to the database is one of the most overhead-intensive operations that can be performed. With connection pooling enabled, connections remain open for a specified duration and can be shared across users. He points out that the advantage of connection pooling is the connection object can be created and destroyed on a per-page basis, rather than being stored in a session variable. Destroying the object on every page releases the connection to the pool so that it may be reused. This resource sharing reduces the load on the server and can reduce database connection time for users after the initial connections are created.
2.7 Related Work

In this section related projects will be discussed.

2.7.1 taxioffice.ps

Is a web based application allow admin to manage office system and user to request through a website and connect with Employee

Features:

- Easy to use.
- Graphical User Interfaces.
- Multi languages support.

2.8 Proposed Work

Mobile and web application for manage office system has a feature of provide an android application that allow admin to manage this system through smart phones also this application will allow users to request taxi based on their needs then send these request to employer and delivered these request on the exact time. On the other side the web based application also have an easy to use interfaces and support multi languages helps users to request without any problems
CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology phases, knowledge flows and the outputs that will be used to gather the requirements, also the design testing and evaluation.

3.2 Design Study Methodology

There are several software process models and methodology that is an abstract representation of a process such as waterfall, incremental, Rapid Application Development (RAD), spiral, and prototyping.

The study uses the waterfall model to represent the knowledge flows and the process phases starting by gathering requirements and ending by testing and evaluation.

3.3 The waterfall model

Waterfall software development methodology is used in our project because all requirements of the project are well understood and phases are processed and completed one at a time, also the system definition is stable and the technology we used is well understood for the project of web and mobile application for office taxi system
Figure 3.1 shows waterfall software development methodology phases.

In this methodology the phases in the project will be in each system (web and mobile applications) have four phases, these phases are:

1. Requirement definition.
2. Planning and analysis.
3. Design and implementation
4. Testing and Evaluation

3.3.1 Requirements Definition

This is the first phase of waterfall model which includes the meeting with the administration and management to determine the questions and formula that using in evaluation process.

- Functional Requirements
- Non-Functional Requirements
3.3.1.1 Functional Requirements Specification

Mobile System:

- The admin can access to the numbers of customer.
- The possibility of use the application from the account that provide from the admin.

Web System:

- Admin can (Add, Edit and Delete costume, also add Credit to customer or withdraw it and can manage customer permissions).
- Admin can show the processes that happen in the web system on tables.
- Add and show the balance on the website.
- The admin can display errors.
- Admin can manage the groups and members.
- Admin can view the reports and the search in the archive of delivery.
- Admin can Access to the numbers of customer that stored in the database.

Both of System:

- The admin can manage taxi office system from a web and mobile application by using Wi-Fi access.
3.3.1.2 Non-Functional Requirements Specification

Reliability issues

The system should be able to receive more than a thousand processes by the customer in the same time, this mandatory priority. Many customer have the ability to register on the system at the same time, database should perform a high quality service, And have Backup every day to save the information include:

- Requests lost in the network.
- Requests reordered in the network or kernel.
- Temporary network disconnections.

Usability issues

Employer of the system should be able to view information about customer in seconds, this mandatory is priority. That system is easy to use and need to be based on needs such as HCI "Human Computer Interaction" The sense that system interacts with the customer in terms of guidance in dealing with system and warning and informing him. For example in the numbers field he has to write only in numbers, same as in the letters field it will not accept numbers. The customer talk about this system is easy to use, and easy to view and move between pages. the screen is designed in a suitable way to the eyes for example personal data filled in the different boxes are easy to locate in the screen and all the contact information filled in other box are clear and organized in an easy systematic way.
Security issues

The core architecture of the system provides control over the access to the system. Detection of unauthorized access and the activities performed by the hackers avoiding it; the system blocks any customer IP enters wrong password 3-times for a temporary period.

Portability issues

The system tends to adapt software system to other environments consisting of different hardware, various operating systems, etc. These requirements make it possible to continue using the same basic software in diverse situations or to use it simultaneously in diverse hardware and operating systems situations, this mandatory priority. It is based on system that works across the internet and it is easily to access from anywhere by any device is equipped with principles of internet connection (computer, Internet line, internet browser, etc.).

Disaster recovery issues

The system database is provided with an automatic backup feature so in case system failure or huge data lost the admin can restore the system using the last backup file.
3.3.1.3 Development requirements:

3.3.1.3.1 Hardware requirements:
- 1.6 GHz or faster processor
- 2 GB of RAM
- 50 GB of available hard disk space
- Android Device

3.3.1.3.2 Software Requirements:
- Microsoft Visual Studio 2012
- Microsoft SQL Server 2012
- Internet information Service (IIS)
- Adobe Photoshop CS6
- Eclipse + ADT plugin
- Android SDK Tools
- Android Platform-tools
- The latest Android platform
- Microsoft Visio 2010

3.3.1.4 Operational requirements:

3.3.1.4.1 Hardware Requirements:
- Computer Connected with Internet
- Android Device

3.3.1.4.2 Software Requirements:
- Web Browser
- Android platform version 4.0 (API level 14) or greater
CHAPTER 4
Planning and Analysis

System Planning:

Project scheduling includes separating the total work involved in a project into separate activities and judging the time require to complete the activities. Figure 4.1 describes the main tasks of the project, duration, and the dependency of each task, it called Gantt chart.

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Durat</th>
<th>Start</th>
<th>Finish</th>
<th>% Con</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirement definition</td>
<td>10</td>
<td>07/10/14</td>
<td>07/20/14</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning and analysis</td>
<td>25</td>
<td>07/21/14</td>
<td>08/19/14</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design and implementation</td>
<td>40</td>
<td>08/20/14</td>
<td>09/19/14</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testing and Evaluation</td>
<td>15</td>
<td>10/01/14</td>
<td>10/17/14</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.1 Gant chart.

- Note: Documentation process is included at the end of each task and its duration is considered in each phases.

System Analysis

In this phase all functional and non-functional requirements that established by the team at the beginning of this study will be analyzed using use case diagrams and sequence diagrams [2].
4.1 Use cases diagram

Use case diagram is used to show the interaction between the actors and the use case.

4.1.1 Mobile Admin use case

After Admin login, he can manage all customer and delivery in system.

Figure 4.2 Show the Mobile Admin use case.
4.1.2 Web Application admin use case:

After admin login, he can manage all system, the admin can add new customer to system, view all customer members, delete customer members from system, and he can import a customer list from database.

Admin can manage system to individual member or to a new customer, he also can delete customer, view the member archive.

Figure 4.3 Show the Web Application admin use case.
4.1.3 Web Application user use case:
After user login, his can managing profile, request New Taxi.

Figure 4.4 Show the Web Application Admin use case.
4.2 Use Case Description

Flow of events represents events and the processes that manage events.

Table 4.1 show the priority of these events (project connections, 2014).

<table>
<thead>
<tr>
<th>Priority</th>
<th>Description</th>
<th>Event</th>
<th>Description</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Must be exist</td>
<td>Actor login (Admin and user)</td>
<td>The system has ability to validation and authentication.</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Its presence is required</td>
<td>Manage user</td>
<td>Manage user data.</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Preferably be located</td>
<td>Add user</td>
<td>Create new account for user.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1 Add user</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2 Maintenance user data</td>
<td>The system has ability operations procedure</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2.1 Search for user</td>
<td>The system has ability search of user.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2.2 Update user data</td>
<td>The system has ability edit user data.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2.3 Delete user</td>
<td>The system has ability to delete user.</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Manage user credit</td>
<td>Manage user credit</td>
<td>Manage user credit data.</td>
<td>1</td>
</tr>
<tr>
<td>3.1</td>
<td>Add new user credit</td>
<td>Add new user credit</td>
<td>Create new user credit.</td>
<td>1</td>
</tr>
<tr>
<td>3.2</td>
<td>Maintenance user credit data</td>
<td>Maintenance user credit data</td>
<td>The system has ability operations procedure</td>
<td>1</td>
</tr>
<tr>
<td>3.2.1</td>
<td>View user credit</td>
<td>View user credit</td>
<td>The system has ability search of user credit.</td>
<td>1</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Update user credit data</td>
<td>Update user credit data</td>
<td>The system has ability edit user credit data.</td>
<td>1</td>
</tr>
<tr>
<td>3.2.3</td>
<td>Delete user credit</td>
<td>Delete user credit</td>
<td>The system has ability delete user credit.</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Manage taxi</td>
<td>Manage taxi</td>
<td>Manage taxi data.</td>
<td>2</td>
</tr>
<tr>
<td>4.1</td>
<td>Send new taxi</td>
<td>Send new taxi</td>
<td>The system has ability to send new taxi</td>
<td>2</td>
</tr>
<tr>
<td>4.2</td>
<td>Add new taxi Reception</td>
<td>Add new taxi Reception</td>
<td>The system has ability to add taxi Reception</td>
<td>2</td>
</tr>
<tr>
<td>4.3</td>
<td>View taxi status</td>
<td>View taxi status</td>
<td>The system has ability to view taxi Archive.</td>
<td>2</td>
</tr>
<tr>
<td>4.4</td>
<td>Delete taxi data</td>
<td>Delete taxi data</td>
<td>The system has ability to delete any taxi data.</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Manage taxi reception group</td>
<td>Manage taxi reception group</td>
<td>Manage taxi reception</td>
<td>2</td>
</tr>
<tr>
<td>5.1</td>
<td>Add taxi reception group</td>
<td>Add taxi reception group</td>
<td>The system has ability Add taxi reception group</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 4.1 Priority table.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2</td>
<td>Edit taxi reception group</td>
<td>The system has ability to Edit taxi reception group</td>
<td>2</td>
</tr>
<tr>
<td>5.3</td>
<td>View taxi reception group</td>
<td>The system has ability to view taxi reception group</td>
<td>2</td>
</tr>
<tr>
<td>5.4</td>
<td>Delete taxi reception number</td>
<td>The system has ability to delete taxi reception group</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Change password</td>
<td>The system allow employer to change password</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Logout</td>
<td>After system customer end tasks he must logout</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.2 Actor login.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Actor login</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>The system has ability to validation and authentication.</td>
</tr>
<tr>
<td></td>
<td>Priority</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Actors</td>
<td>Admin / employer / user</td>
</tr>
<tr>
<td></td>
<td>Entry Condition</td>
<td>• Enter to Login page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Then enter to admin / Employer page / user page.</td>
</tr>
<tr>
<td></td>
<td>Entry</td>
<td>User name and password</td>
</tr>
<tr>
<td></td>
<td>Flow of Events</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main flow</td>
<td>The system shows username and password page/interface.</td>
</tr>
<tr>
<td></td>
<td>Sub flow</td>
<td>If the login is valid then the user start work within permeation</td>
</tr>
<tr>
<td></td>
<td>Alternative flow</td>
<td>Enter wrong password or email then error message will appear</td>
</tr>
<tr>
<td></td>
<td>Output</td>
<td>Main Page/interface will appear after valid login.</td>
</tr>
<tr>
<td></td>
<td>Constraints</td>
<td>Prevent entering admin page if the email or password wrong.</td>
</tr>
</tbody>
</table>

25
4.3 Sequence diagram:

4.3.1 Administrator sequence diagram

4.3.1.1 Add new customer sequence diagram

When admin try to add new customer, the login page will appear it ask him to enter his username and password, the system will verify the username and password, if incorrect the system will not allow the admin to login to his page, if correct the system will redirect the admin to his page which contain all administrator options, if the admin choose “add new user” the system will show “add new user” interface, the interface will ask the admin to enter the user data.

The Customer data contains his Real name, customer sender name, the customer number, also the data contains other customer information. After that, the system will search in the database about this user, if the user is found the system will return error message “the user is already exist”. Else, it will return a message “user added successfully”.

Figure 4.5 show the sequence diagram for adding a new user.

![Add new user sequence diagram](image-url)

Figure 4.5 Add new user sequence diagram.
4.3.1.2 Update user data Sequence Diagram

This sequence diagram for update an existing user, we need this process to recharge the customer account. After the admin login to his page and choose user data options, if the admin choose “update user data” the system will show “update user data” interface, then the admin can edit user data, then the system will return message “user data updated successfully”.

Figure 4.6 show the sequence diagram for updating user data.

Figure 4.6 Update user data Sequence Diagram.
4.3.1.3 Delete user sequence diagram:

After the admin enter to his page and choose user data options, if the admin choose “delete user data” the system will show “delete user data” interface, then the admin can delete user data, then the system will return message “user data deleted successfully”.

Figure 4.7 show the sequence diagram for deleting user.

Figure 4.7 Delete user sequence diagram.
4.3.1.4 Search for user sequence diagram:

After the admin enter to his page and choose user data options, if the admin choose “delete user data” the system will show “search for user” interface, then the admin can search for user, if the system doesn’t found, then it will display the user, if the system doesn’t found, then it will return message “the user not found”.

Figure 4.8 show the sequence diagram for searching for user.

Figure 4.8 Search for user sequence diagram.
Chapter 5
Design and implementation

5.1 Web System Interface:

5.1.1 Login interface

Figure 5.1 Login interface.

Name: Login interface.
Description: This interface offers the admin and user to access to his web page account by entering his username and password.

5.1.2 Users Management interface

Figure 5.2 User Management interface.

Name: Users management.
Type: Control panel.
Description: This interface allows the admin to add, edit, search and delete users or admin, and add or withdraw balances and edit the permissions for them.

5.1.3 Send Request interface

5.2 Mobile application interface:

5.2.1 Login interface:

5.2.2 Main interface:

5.2.3 Choosing and sending messages interface
5.3 **Database Schema:**

5.4 **Implementation**

Any system Implementation process requires two conditions, these conditions are system good understanding and some tools to help in application building and testing.

First condition is achieved from previous phases, to achieve the second conditions project team will use many programs in system implementation as:

- Microsoft windows platform with .net 5.0 & IIS local web server.
- Photoshop CS6 for website template, images, and some design issues.
- Microsoft SQL server 2012 for database schema implementation.
- Visual studio 2012 for website pages implantation.
Chapter 6
Testing and Evaluation

6.1 What is testing?

Testing is an activity to examine all processes of the system and detect any errors that can occur, when the test detects any error, this means that the system is not ready to deploy, so that the test process is very important to ensure the absence of any problem that faces the end user.

6.2 Unit testing

After implementing and coding phase the system was divided into parts and test every unit separately such as Management Users, web application configuration, management request and users, and request new taxi.

6.3 System testing

System testing during development involves integrating components to create a version of the system and then testing the integrated system. System testing checks that components are compatible interact correctly and transfer the right data at the right time across their interfaces.

6.4 Test case

After performing the unit test and the system is ready to implement test case for each subsystem runs to validate from functional and non-functional requirements of each sub system in this test case we will validate the requirement of the manage user subsystem and taxi office subsystem.
Table 6.1 shows the test cases for subsystems

<table>
<thead>
<tr>
<th>Test Case</th>
<th>TC Type</th>
<th>TC Description</th>
<th>Testing Probabilities</th>
<th>Testing Results</th>
<th>TC status</th>
<th>Testing Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>Validate</td>
<td>To pass the login page</td>
<td>Enter correct username and password</td>
<td>Successful login</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Login</td>
<td></td>
<td>Enter invalid username and password</td>
<td>Error message</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Validate</td>
<td>To ensure adding a new user</td>
<td>Fill all the required field</td>
<td>Successful adding</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>Add User</td>
<td>Adding process</td>
<td></td>
<td>Left one required field empty</td>
<td>Error message</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Deleting</td>
<td>To ensure deleting user</td>
<td>Select the required field to delete</td>
<td>Successful deleting</td>
<td>pass</td>
<td></td>
</tr>
<tr>
<td>Delete User</td>
<td>Deleting</td>
<td></td>
<td>Left one required field empty</td>
<td>Error message</td>
<td>pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Editing</td>
<td>To ensure editing User Data</td>
<td>Enter correct data type in the required field</td>
<td>Successful editing</td>
<td>pass</td>
<td></td>
</tr>
<tr>
<td>Edit user</td>
<td>Editing</td>
<td></td>
<td>Enter incorrect data type or left the required filed empty</td>
<td>Error message</td>
<td>pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sending</td>
<td>To ensure request taxi</td>
<td>Fill all the required field to send request taxi</td>
<td>Successful sending</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>Send messages</td>
<td>Sending</td>
<td></td>
<td>Left one required field empty</td>
<td>Error message</td>
<td>pass</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.1 test cases for subsystems
6.5 Waterfall testing

Waterfall testing, tests the functionality of the system and done by the programmer and the tester.

6.6 Security testing

Can system be penetrated by any hacking way, testing how well the system protects against unauthorized internal or external access, Checked if system, database is safe from external attacks.

6.7 Acceptance Testing

The system was presented to a set of users to examine it and make sure that there are no errors and problems in using it.

First, our supervisor Dr. Ibrahim Tabash tests the new system, and he agrees on our work result and the way which system is working.

We deliver the new system to a company for office taxi Safa to Mr. Mohammed hammad, and office taxi Amman to Mr. Adnan Nasar, and then they give us some notice about it, and asked us for some updates. After the new updates the system has been accepted and buy it.

6.8 Usability Testing

The usability for using the project have been tested to make sure how easy the system is, so we let some of our friends and our relative to test it, and their opinions was Positive that they said:

- Easy to use
- Simple
- Well understood
6.9 Evaluation

As defined by the American Evaluation Association, evaluation involves assessing the strengths and weaknesses of programs, policies, personnel, products, and organizations to improve their effectiveness.

To make an evaluation for our project are used in questioner to evaluate the usability, functional, and acceptance for the project, the questioner and the result of the evaluation are show as chart in appendix C.

6.10 Usability Evaluation

Usability evaluation is an essential step in human-centered design. A variety of usability evaluation methods are needed in a development process, because usability is a complex multidimensional concept that should be looked at in many ways. Different methods serve different evaluation purposes and reveal different problems. Therefore, several methods should be used as a complement to each other.

6.11 User Evaluation

User evaluation conducts to determine user's perception on the usability aspect of the prototype. Despite user evaluation based on the scores of evaluation instruments, the success results not from high post test scores but from effective behavior.
Chapter 7

Conclusion and future work

When we began this project since four months ago we set several main goals to achieve, first to build a web and mobile application to facilitate communication between users with offices by sending new taxi request at anytime and anywhere. The web and mobile application successfully built, tested, and evaluated nowadays, the company and users will use the system to facilitate the communication with others. Despite all the limitations we face during the project duration such as:

- Lack of time to build and develop the system.
- External constraints going through Gaza Strip, such as Electricity cut, Internet and the requirements for the completion of this project
- Lack of the experience of company staff to use technology.
- Lack of sources, references.

Future Work:

Several features will be add to a mobile application such as:

- User Management (Admin only)
- Show the general balance of the site (Admin only)
- Support devices running on IOS operating system
REFERENCES


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Management Information System. Proceedings of ASCNT, CDAC. 164 – 171


Meier, J. D. Top Ten Tips: Accessing SQL through ADO and ASP.


Appendices

Appendix A

Appendix A use case description:

<table>
<thead>
<tr>
<th>No.</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Manage users</td>
</tr>
<tr>
<td>Description</td>
<td>Manage user data.</td>
</tr>
<tr>
<td>Priority</td>
<td>1</td>
</tr>
<tr>
<td>Actors</td>
<td>Admin.</td>
</tr>
<tr>
<td>Entry Condition</td>
<td>• Enter to Login page.</td>
</tr>
<tr>
<td></td>
<td>• Then enter to manage user page.</td>
</tr>
<tr>
<td>Entry</td>
<td>Username and password.</td>
</tr>
</tbody>
</table>

Flow of Events

The manage instructor menu consists the following:

1. Add new user.
2. Maintain user data.
   2.1. Update user data.
   2.2. Delete user data.
   2.3. Display all user data.

- If the admin chooses add new user data, the (s-1) will be performed.
- If the admin chooses maintain user data, the (s-2) will be performed.

Through (s-2) the admin has make this operations:

- If the admin choose update user data, the (s-2.1) will be performed.
- If the admin chooses delete user data, the (s-2.2) will be performed.
- If the admin chooses display all user data, the (s-2.3) will be performed.

Sub flow

- **S-1: Add new user**: when the administrator select this task, the adding user form will appear, then the administrator inserting the user data.

- **S-2-1: Update user data**: when the administrator select this task, the update user form will appear, then administrator updating the instructor data.

- **S-2-2: Delete user data**: when the administrator selects this task, the deleting user form will appear, then the administrator deleting the instructor data.

- **S-2-3: Display all user data**: when the administrator selects this task, the display all user data form will appear.

Alternative flow

Enter wrong password or username : Error message will appear.

Output

Success message will appear after valid operation.

Constraints

Prevent entering manage instructor page if the username or password wrong.

Table A1- Manage users
<table>
<thead>
<tr>
<th>No.</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Manage New Taxi request</td>
</tr>
<tr>
<td>Description</td>
<td>Manage the data of New Taxi request</td>
</tr>
<tr>
<td>Priority</td>
<td>1</td>
</tr>
<tr>
<td>Actors</td>
<td>Admin.</td>
</tr>
</tbody>
</table>
| Entry Condition | • Enter to Login page.  
• Then enter to manage New Taxi request. |
| Entry | Username and password. |
| Flow of Events | The manage New Taxi request menu consists the following:  
1. Add new credit.  
   2.1 Update New Taxi request data.  
   2.2 Delete New Taxi request data.  
   2.3 Display all New Taxi request data.  

Main flow  
• If the admin chooses Add new Taxi data, the (s-1) will be performed.  
• If the admin chooses Maintain New Taxi request data, the (s-2) will be performed.  
  ○ Through (s-2) the admin has make this operations:  
   • If the admin choose Update New Taxi request data, the (s-2.1) will be performed.  
   • If the admin chooses Delete New Taxi request data, the (s-2.2) will be performed.  
   • If the admin chooses Display all New Taxi request data, the (s-2.3) will be performed.  

Sub flow  
• S-1: Add new Taxi request: when the administrator selects this task, the Add new taxi form will appear, then the administrator inserting the New Taxi request data.  
• S-2-1: Update New Taxi request data: when the administrator select this task, the update New Taxi request form will appear, then administrator updating the New Taxi request.  
• S-2-2: Delete New Taxi request data: when the administrator selects this task, the deleting SMS Credit form will appear, then the administrator deleting New Taxi request.  
• S-2-3: Display all New Taxi request data: when the administrator selects this task, the display all New Taxi request data form will appear.  

Alternative flow | Enter wrong password or username : Error message will appear |
| Output | Success message will appear after valid operation. |
| Constraints | Prevent entering manage secretary page if the username or password wrong. |

Table A2-Manage New Taxi request
<table>
<thead>
<tr>
<th>No.</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Manage Taxi request</td>
</tr>
<tr>
<td>Description</td>
<td>Manage Taxi request.</td>
</tr>
<tr>
<td>Priority</td>
<td>2</td>
</tr>
<tr>
<td>Actors</td>
<td>Admin /user.</td>
</tr>
</tbody>
</table>
| Entry Condition | • Enter to Login page.  
• Then enter to manage Taxi request. |
| Entry | Username and password. |

**Flow of Events**

The manage department menu consists the following:
1. Send new Taxi request.
2. View Taxi request archive data.
3. Delete Taxi request.
   - If the Admin /user chooses Send new Taxi request, the (s-1) will be performed.
   - If the Admin /user choose view Taxi request archive data, the (s-3) will be performed.
   - If the Admin /user choose delete Taxi request, the (s-4) will be performed.

**Main flow**

- **S-1: Send new Taxi request**: when the Admin /user select this task, the Send new Taxi request form will appear, then the admin /user inserting the Taxi request data.
- **S-2-2: View Taxi request archive data**: when the admin / user selects this task, the View Taxi request archive data form will appear, then the admin /user can view Taxi request archive data.
- **S-2-3: Delete Taxi request**: when the Admin /user selects this task, they can delete any Taxi request

**Sub flow**

**Alternative flow**
Enter wrong password or username :Error message will appear

**Output**
Success message will appear after valid operation.

**Constraints**
Prevent entering Manage SMS page if the username or password wrong.

Table A3- Manage Taxi request
<table>
<thead>
<tr>
<th>No.</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Actor change password</td>
</tr>
<tr>
<td>Description</td>
<td>The system allows user/admin to change password.</td>
</tr>
<tr>
<td>Priority</td>
<td>2</td>
</tr>
<tr>
<td>Actors</td>
<td>Admin /web site user</td>
</tr>
</tbody>
</table>
| Entry Condition | • Enter to Login page.  
• Then enter to change password. |
| Entry | Username and password. |
| Flow of Events | |
| Main flow | The system shows change password form. |
| Sub flow | - |
| Alternative flow | Enter wrong password or username then error message will appear |
| Output | Success message will appear after change password. |
| Constraints | Prevent entering admin / web site user if the username or password wrong. |

Table A5- Actor change password

<table>
<thead>
<tr>
<th>No.</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Logout</td>
</tr>
<tr>
<td>Description</td>
<td>The system allow user to logout.</td>
</tr>
<tr>
<td>Priority</td>
<td>2</td>
</tr>
<tr>
<td>Actors</td>
<td>Admin / web site user /mobile user.</td>
</tr>
</tbody>
</table>
| Entry Condition | • Enter to Login page.  
• Then enter to web site user /mobile user page. |
| Entry | - |
| Flow of Events | |
| Main flow | The system shows logout form. |
| Sub flow | - |
| Alternative flow | - |
| Output | Redirect to Default website page message will appear after logout. |
| Constraints | Prevent entering web site user /mobile user if the username or password wrong. |

Table A6- log out
Appendix C

Tehfah this moomaahy taawufa qeefha waytaqoof Jeebof kahfaan omm aqo fahad naa astaamaan foon daaam.

استبانة لتقييم مشروع

Mobile and web application for sending messages

تنقسم هذه الاستبانة الى قسمين:

القسم الأول يهتم بمعلومات خاصة بك:

1 - ما هي وظيفتك الحالية: .................................................................
2 - الجنس: □ ذكر □ أنثى.
3 - سنوات الخبرة في استخدام الموبايل:
   □ لا يوجد □ أقل من 5 سنوات □ 5-9 سنوات □ 10 سنوات

القسم الثاني حول استخدام البرنامج:

بعد قراءتك للخيارات ضع دائرة حول الرقم الموافق لرأيك:

• دائرة حول 5 يعني موافق بشدة
• دائرة حول 4 يعني موافق
• دائرة حول 3 يعني محايد
• دائرة حول 2 يعني غير موافق
• دائرة حول 1 يعني غير موافق بشدة

42
<table>
<thead>
<tr>
<th>رقم</th>
<th>نقطة</th>
<th>الرسالة</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>هل البرنامج يسهل عليك القيام بالعمليات اليومية</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>هل يقوم البرنامج بتيسير إنجاز العمليات اليومية</td>
</tr>
<tr>
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<td>1</td>
<td>هل البرنامج يساعدك على التواصل مع الزبائن</td>
</tr>
<tr>
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<td>1</td>
<td>هل البرنامج يسهل عليك التعامل مع الزبائن</td>
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<tr>
<td>5</td>
<td>1</td>
<td>هل البرنامج يساعدك في إجراء معاملاتك الخارجية</td>
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<tr>
<td>6</td>
<td>1</td>
<td>هل يعتبر البرنامج سهل و مرن في الاستخدام</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>هل التفاعل مع البرنامج واضح ومفهوم</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>هل استخدام البرنامج مرن وتفاعلي</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>هل من السهل أن أصبح ماهر في استخدام البرنامج</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>هل يمكن تعلم استخدام البرنامج بسهولة</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>هل تذكر خطوات استخدام البرنامج بسهولة</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>هل الخدمة التي يقدمها البرنامج كافية</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>هل البرنامج رائع ومجدي</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>هل يعمل البرنامج بالشكل المطلوب</td>
</tr>
</tbody>
</table>