**COIT20269: Mobile Web Apps**

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**Assignment 2**

**Mobile client/server Application**

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# Introduction

The report is about creating data logger to capture data and to store in database. The application takes the detail of five days and in each days the serial id, pilot, key, contract and category is defined, these data are recorded by application.

# Objectives

The main goal of this project is to enhance the features of application by using development tools like JavaScript, Cordova, HTML5, jQuery, CSS. For storing our drone logger data, we will be using Mongo dB with the help of express middleware.

# Hardware and software requirements of Applications

The application that is being developed is mobile app web-based system. Its feature let us configure device and network connections. For developing this application, the required tools used are as follows: -

* Operating System
* Server: Nginx-1.18.0/64 bit
* Network connection
* Global Positioning System (GPS)
* Mobile
* Location
* NodeJS
* Cordova
* MongoDB
* Android Studio
* Notepad++
* Microsoft word

# Plan for testing strategy for Mobile web site

## 4.1 Android Devices

To test mobile web site Android studio has been great help as it helped me to implement my web site in various range of devices having different versions. For this application Gradle 6.6.1 is used. All the android version can be downloaded in android studio to test the working of application.

To test this application, Android version that I used is:

* Nexus 6x API 28(Android Pie) with 9 as android version and CPU/ABI as x86.

While running the application the android studio and emulators were really slow and had to wait some time to function it.

## 4.2 Web browsers

Firstly I tested the code in web browser because the delivery of result is fast. The code can be run immediately after doing changes. I mainly used google chrome for executing the code. When the code start working properly, later on I tested on firefox, Safari.

**4.3** **Emulators and simulators roles in process**

Emulators and simulators are the program that imitates as other device to perform same process as other devices. Though it is possible to run on different devices while testing but it will only take more time that is why emulators and simulators play major role in testing process because it provides same result as the targeted device.

# Financial case and commentary of Application features

## 5.1 features of Application

The application is built to keep the track of drone. The record contains in which day the drone was used by whom with all the information like

* Home page view: - In this page the number of days is listed from day1 to day5.
* Drone view: - In drone view the information like serial id, pilot name, key, contract, category is entered.
* Drone log view: -In this page all the information entered will be displayed with the location and time.
* Send and Get button: - In the drone log view the send and get button are added so that we can store the data in cloud. The send button will send data to MongoDB database and when we want to retrieve it we can get that information by get button.

# 5.2 Additional Functionality

The additional functionality that can be added to drone logs are

* Design: The design of the app is simple, and it can be upgraded with pictures and videos.
* Sign in and Sign up feature: This functionality will help to record the data of existing and future and past user so that we will be able to know who the user was.
* Security: the code written for the application does not have proper security mechanism, it is simple and can easily be hacked.

# 5.3 Ethical consideration

* Treating other people data as own: We get scared when our data is being leaked to unknown people so considering ethical values, we have to secure the user data and only share what user is comfortable with.
* Collecting needed information only: Collecting only required information for current and future use as per the permission of user.
* Copying code: Following the API and software terms and condition and coding should be done without stealing others code.
* No harm: Since drone logger do not contain any sensitive topics it is not harmful to any age group or people.
* Agile and Iterative: When we start to develop application, we do not know what the outcome will be later so it is better to review to make sure it ensure the intended purpose.
* Being transparent: When user input the details, there are lot of they don’t care and when they do we have to give justification on why we need those user data so in drone logger, if the user ask why we are asking for those data then we have to tell them why it is needed.(YTH, 2015)

# Economic/financial case

## 6.1 Staff development cost

Assuming the cost per hour is $100 for development of application.

Since the complexity of application is simple,

the estimated time is 400 hours to complete the application and with cost per hour 100$ the total cost for app development will be $40,000

suppose we need 20 employees,

1 employee = 400/20

= 20hr per person

So 1 employee will get $2000 for completing their task. So, if development cost for 10 user is $40000/10 = $ 4000

For 100 by increasing 50% = $6000

For 1000 by increasing 50% = $9000

6.2 Database storage cost**:** The database we are using for this app is MongoDB. This app provides three services and they are

* Mongo DB Atlas is free to use which provide shared cluster feature.
* Mongo DB dedicated cluster costs 57$/month with storage of 10GB to 4TB and RAM with 2GB to 768Gb which is applicable foe advanced development or production ready environments.
* Mongo DB Multi-Region Clusters which is 95$/month with storage of 10GB to 4TB and RAM with 2GB to 768Gb that supports multi region resiliency or ultra-low latency

So, if the user entries is 10 per month and we use the MongoDB dedicated cluster which is $57/month then we will have,

For 10 users: 10 X $57 = $570

For 100 users: 100 X $57 = $5700

## 6.3 Marketing Campaigns

Competition among app is growing more with everyday new apps and people are only using handful of application and mobile marketing cost depend upon the launch of application. The launch of application can be divided into pre-launch, launch and post launch and to win customer we need to do following steps for marketing campaigns (Dogtiev, 2019).

* When we start to do marketing, we need to do research about market which would take around $5000 to $15000 as per the number of targeted people.
* App marketing agency will take $25k per application.
* Influencer marketing $10k per month
* Average cost per install (CPI) is $2.89 per month
* CPA (Cost per Action) Register: $4.58 per install
* CPA purchase: $40 per install
* CPA Subscribe: $87 per install
* CPA Register: In-app purchase $102 per install

So, by taking the minimum cost and analyzing the user from 10 to 10,00,000 from above campaigns the total will be

$5,000 + $25,000 + $10,000 +2.98 = $40,002.98

So, for 10 users $40,002.98/10= $4000.298

## 6.4 Break-Even cost

And if the user installs the app, the estimated profit will be

$2.98 + $4,.58 + $40 + $87 + $102 = $236.56 per install

So, if 10 users install the application

10 X 236.56 = $2356.6

If, 100 X 236.56 =$23656

If 1000 X 236.56 = $2,36,560

And maintenance cost can be estimated as 20% of development budget including CDN, server data storage etc.

With the above calculation the application is beneficial as per the increase in user. So, for the break-even point for all of the mention users the estimated time is:

10 users = 5 months

100 users = 1.5 year

1000 user = 10 years

So, the break-even point will be between 100 to 1000 users.

# References

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