**I/ Introduction**

The majorities of work had been increased and there are a various amount of workers that need to work in Plymouth , far point from London. In a offer for better quality of life, they want an application that can shows their expenses. The applications that I create below will cover it

**II/ Implentation**

**Cái bảng implentation trong đề , chú sang bỏ vô đây xong cái nào làm rồi tick vô**

This application also connect with an Cordova app. Employee beside adding their information details, they also had a change to select their desire vehicle, what do they want to travel with. There also a hotel field where they can input the hotel that they want to stay. The last field is place, this field indicated what place they want to go during their work trip

**III/ Reflection**

This Native application was built around my Mobile Application Design and Development course. The environment that was used for the application is Android Studio. It is an application that provides generate code as well as device for me to test during the development. Mainly the Native application was built on Java. For the cross Cordova application , I used the Visual Studio Code and use HTMLCSS, JS to build it. For the project to be succeed, this project was divide into four phases. The project takes 3-month. The first phase mainly focus on I collect data and information on user, this is a research on behaviour, what they want, what they need and don’t. The second phase focus on I analyze all the collected data and reflect it with the idea that I have in the beginning and cross-over what is unnecessary. The third phase , I work on develop the application. As I said I use Java to build my Native application first, the generate idea that I had from the Native app help me code the Cordova application. The fourth phase of the project is the retrospective phase, where I review all my application and make changes if need. Throughout the course, I also find my weakness and strength in this field. I am very slow in coding and have the hard time to understand all the functions,, it took me a lot of time to research or fix the bugs. Also the lack experience in Java and using the environment, it slowed down my project. On the other hand, I was able to learn how one application is actually developed, its phases as well as how all the fuction were generated. This course also give me a time to review my Java language and HTML,CSS,JS. In order to enhance my ability in mobile application design and development, I had work more in some other application, read more book also review some application. I also have meeting with my teacher and developers so I can understand their mind in designing. This takes step by steps for my ability in this field to be improved

**IV/ Evaluation**

This evaluation was a report that I compared my application with some standards requirements of human-computing interaction, security, screen adjusting and changes.

1. **Human computing interaction**

A good application is an application that is not only good when runing when running function but it also had the ability to interact well with its user. From the beginning, I was set a interaction standards for my application. I was able to show this through the display of my screen. I put all my icon in the easiest place to view, also they are able to describe the function that they will execute in one glance. I also put the logo in the middle that can give the users brief understanding on what the application is aiming. In my Cordova application , there will be some crucial function that users may forgot, I put it under the application logo, so it always remind them about those functions.The title also have to be bright and able to tell the application. I also highlight important function such as add trip, trip list, etc. The placing is also important, after each task, I place them well-organize on each bars, button so the interface can be perfectly fit in one standard. The same is applied for the fonts, size,text; headline and footer will have bigger text to notify user

1. **Security**

I was not able to look into this section due to the time limit but I already had some idea which will contribute for the application. The must function is the login and log out. User will be given a ID and password where password will be secure ( addition with more symbols), the database also have to be secured, only some people can access to it. There is some function that I want to implement in order to protect my user. From the simplest is put some warning in the application, where I can tell my user not to give there information in some case, beware of some fraud.A small guidebook also implemented to prevent malware attack. One last , if I have time I also want to implement a contact service for customer, when they have problems they can contact the security department immediately.

1. **Screen Adjusting**

I also not have time to do this perfectly, but I also had idea for it. Screen adjusting is the ability for an application to adjust their screen despite what interface they run on. The system can re-sizing the application to fit the UI. Screen adjusting covers from alternative layouts,stretchable images to density independence and even vector graphic. I am not putting to much time on screen adjusting, but I did work on it throughout the project. All the register form was perfectly fit on the new screen, the expense section also show up and can be viewed the same like on the phone. Other page from home page, about page, list is also fit able despite the what device it puts on. All the tabs,the icons share the same characteristics even on a different devices.The hardship of this process is I am not able to adjust my logo on web page. The logo is not fit on one screen, it is too big.

1. **Changes**

The application is required to be for live use, but the application face major problems for it to do it. There are some changes that the application need. The application is missing some functions such as the ability to edit the expense of the use, the ability to edit it; user can not edit or delete whenever they add it. As I said the application also face major security problem, this needed to be added immediately. I still think the application is missing some interaction with user. The application is still to stiff, the task can only be done after I switched to another tab, lacking some link through every tab so in order to enhance the human computing interacting, it is indeed to work on how can user can interact with the application easier without taking too much time on switching the tab, like bring them immediately to the trip list after they add a list, instead let them tab to it. It is also wisely for me to focus on screen adjusting where I still have a problem on a logo is too big for web-service

IV

Ảnh code Cordova và Native

V

Code chính và giải thích