Maintenance Documentation

Prepared by: Fees.exe 808A

Topic: Homeless

Idea : Homeful Melbourne

Version : 2.0

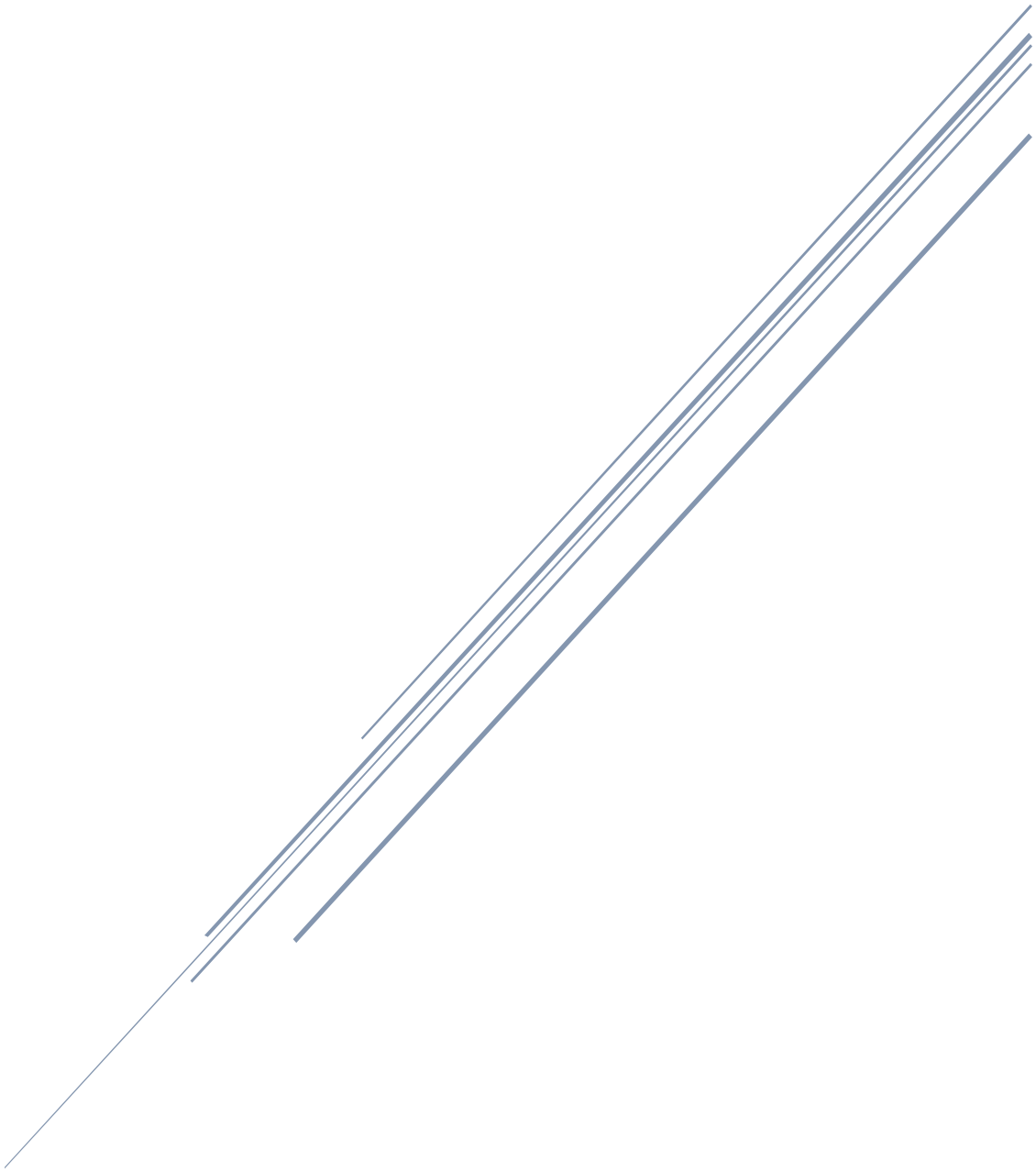


Table of Contents

1 Introduction

This document provides the necessary information about how to maintain the “Homeful Melbourne” application, which includes the system architecture, functional diagram, the test cases. Also, the document provides the link of the code sources to show the detail of the application.

1.1 Purpose

The document aims to help the reader to maintain the application using the necessary information including the technical details of the application.

1.2 Audience

The audiences of the document are the maintenance staff, who should have the background of information technology, because the document refers to some information technology knowledge.

2 System organization

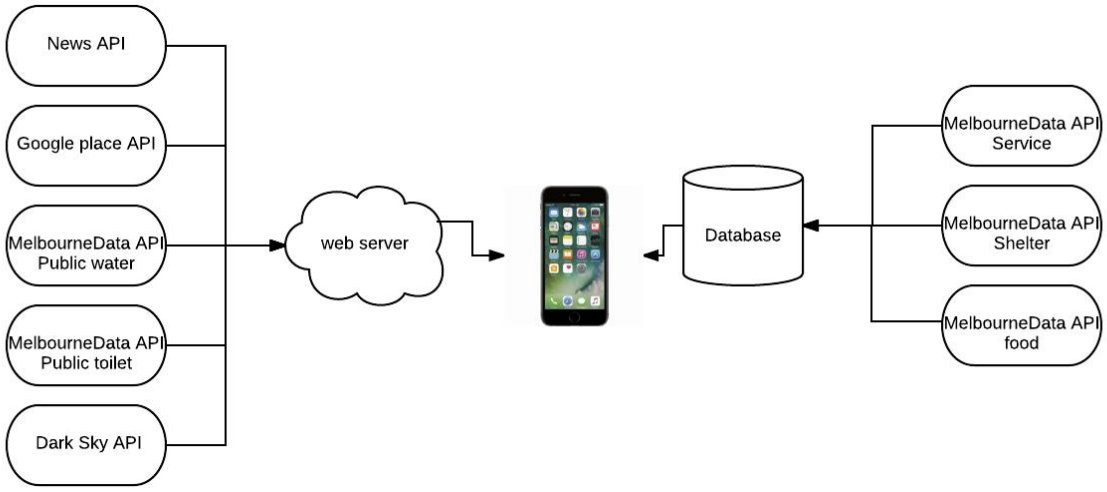


Figure 1 System architecture

The System is made up of 3 main components. The first one is APIs. There are two different categories. The first category includes news API, google place API, Melbourne Data API public

water, Melbourne Data API public water and Dark Sky API, these API data will be retrieved directed from the webserver and used in android system. In contrast, Melbourne Data API Service, shelter and food will be retrieved and then stored in the database. After data cleaning, these relative data will be used in the android system.

3 Functional Decomposition Diagram

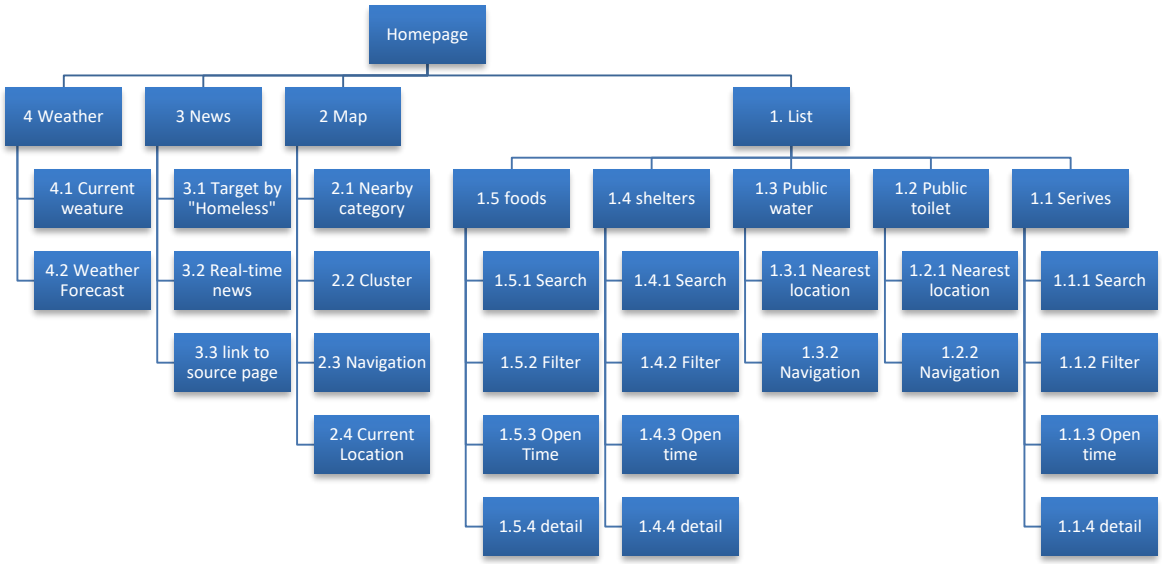


Figure 1.2 Functional Decomposition Diagram

As is shown in Figure, the functional diagram is divided into 4 parts. The first function is list information, which will retrieve the data from Melbourne Data API. In terms of Service list, food list and shelter list, the system will provide search function by search name, search postcode/suburb name, search open time and all relative data from database will be retrieved and shown in the current list page. Also, the open time option can be clicked to filter the facilities which is opened. However, the public toilet and water list only provide the nearest location and the navigation based on the user current location because the water and toilet list is little useful for the user. For map function, all the corresponding list items will be shown in the map and the nearby sites will clustered. For news function, the news list will show the title, the publish time, the image and the description. Also, these items link to the source sites. For the weather function, the list will show the current weather and the weather forecast. To be specific, the data of the current weather will be updated every 3 hours automatically.

4 Facilities and Resources

4.1 Hardware facilities

The hardware facilities which used in developing the application is shown in Figure 1.3

Hardware			
NAME	OS	TYPE	DESCRIPTION
MacBook Pro I7	Mac OS Sierra	Laptop	used for developing application, coding and testing
TERANS FORCE	Windows 10	Laptop	used for developing application, coding and testing
HUAWEI HORNOR 6	Android 7.0	Phone	used for testing
HUAWEI P10	Android 5.1.1	Phone	used for testing

Figure 1.3 Hardware facilities table

4.2 Software resources

The software resources which used in developing the application is shown in Figure 1.4

Software		
NAME	version	DESCRIPTION
Android Studio	version 2.3	used for developing application, coding and testing
AWS	version 1.0	used for developing database and testing

Figure 1.4 Software Resources

4.3 Environment requirement

The application has some requirement including hardware and software that need to meet, the detail is shown in Figure 1.5.

Requirement		
Constraint	version	DESCRIPTION
Android System version	≥ 5.1.1	the minimum Android System version
Android Studio version	≥ 22	the minimum Android Studio version
Android Phone hardware RAM	≥ 4G	the minimum hardware RAM

Figure 1.5 Environment requirement table

5 Application and Environment Instruction

5.1 Install the SDK

User can download the Android APK from Google Drive or Our Project Mahara Page.
Download Link:
https://mahara.infotech.monash.edu.au/mahara/view/view.php?id=11088

- Download the “HomefulMelbourne.apk” file into specified directory on your computer
- Next, connect your Android device with computer
- Move the “HomefulMelbourne.apk” into Android device SD storage or Local storage
- When transferring successfully, Select the .apk file and allow all the permission to install it on your Android device

5.2 Device Configuration

This section will provide information on how to setup supported device for running the “Homeful Melbourne” application.

- Update the android version to 5.1.1 (lollipop) or more if needed
- ensure device connect to the internet
- ensure device open GPS service
- In order to test and debug applications on Android device, you should open the developer mode on your android device:

1. Go to Settings → System → About device
2. Choose Build Number
3. Press Build Number for seven times

Then, you will see the information about Developer options has been enabled. Under Developer mode, you can connect your Android device with computer for debugging and testing.

5.3 Development Environment Configuration

In order to run, deploy and test the application on Android device, please setting up your system to detect android device by USB connection, then install the Android studio for testing, debugging and compile the Application.
Android studio for Windows

1. Java Development Kit (JDK) 1.8 (recommended)
2. Android Development Tools Bundle
3. Android Native Development Kit
4. Git plugin (For Version Control)

Android studio for OS X

1. Xcode
   Before installing any Android development tools, user must install Xcode
2. Java Development Kit (JDK) 1.8 (recommended)
3. Android Development Tools Bundle
4. Android Native Development Kit
5. Git plugin (For Version Control)

5.4 Setting up cloud database

This application is using Amazon Web Service (AWS) to store the data. The architecture of this backend database consists of two main service from AWS, which are Amazon Relational Database Service (RDS) and EC2.

Setting Up for Amazon RDS

1. Sign up for AWS
2. Create an IAM User
3. Determine Requirements
4. Provide Access to the DB instance in the VPC by Creating a Security Group

For more details, please check the Amazon official guide:
http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_SettingUp.html#CHAP_SettingUp.SecurityGroup

Setting Up for Amazon EC2

1. Sign Up for AWS
2. Create an IAM User
3. Create a Key Pair
4. Create a Virtual Private Cloud (VPC)
5. Create a Security Group

For more details, please check the Amazon official guide:
http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/get-set-up-for-amazon-ec2.html

Deploy RDS on EC2 emulator

This section is to introduce how to deploy the RDS on EC2 emulator, and explain the detail about both process and tools.

RDS is the cloud storage which store all the database about Homeful Melbourne application service data. EC2 is the remote server which can deploy the database from RDS and transfer it to Android devices over internet.

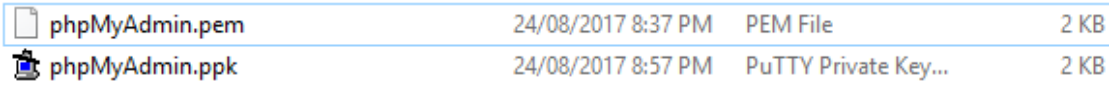
Tools for both Windows and Mac OS:

In order to deploy the database on the emulator, there are several tools needed to install.

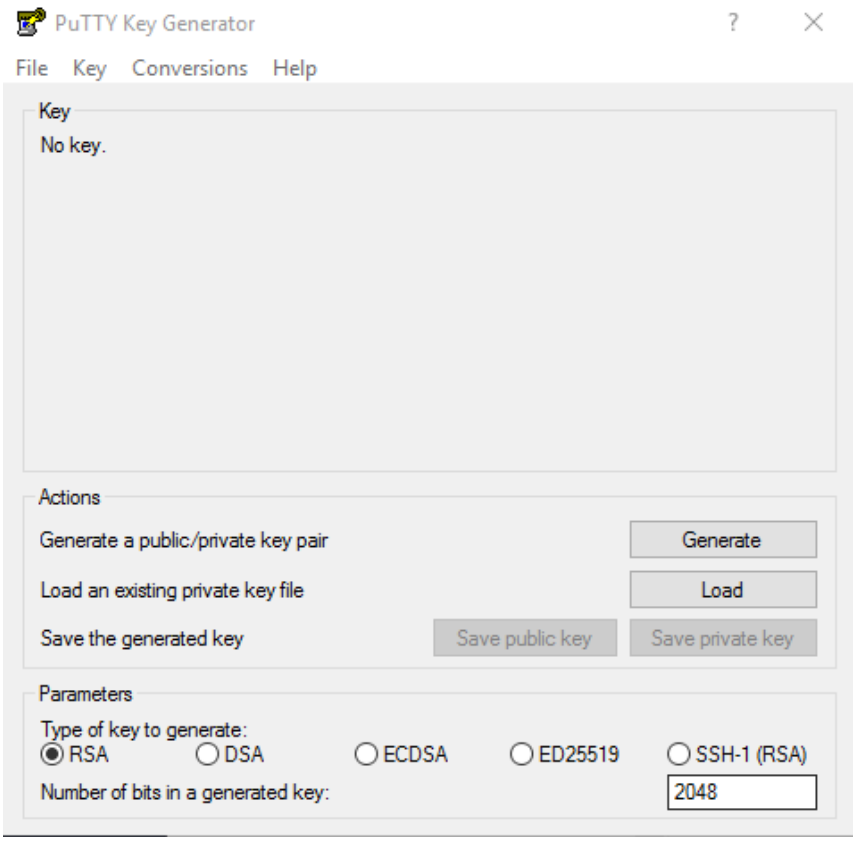
1. Putty/PuttyGen
2. WinSCP/MAC OS X console

Putty Gen

1. After installing the RDS database, user can receive the public key after finishing configuration. The .pem suffix is the public key file.



2. Then, using Putty to generate the private key from given .pem file. Click the Load to load the ppk.

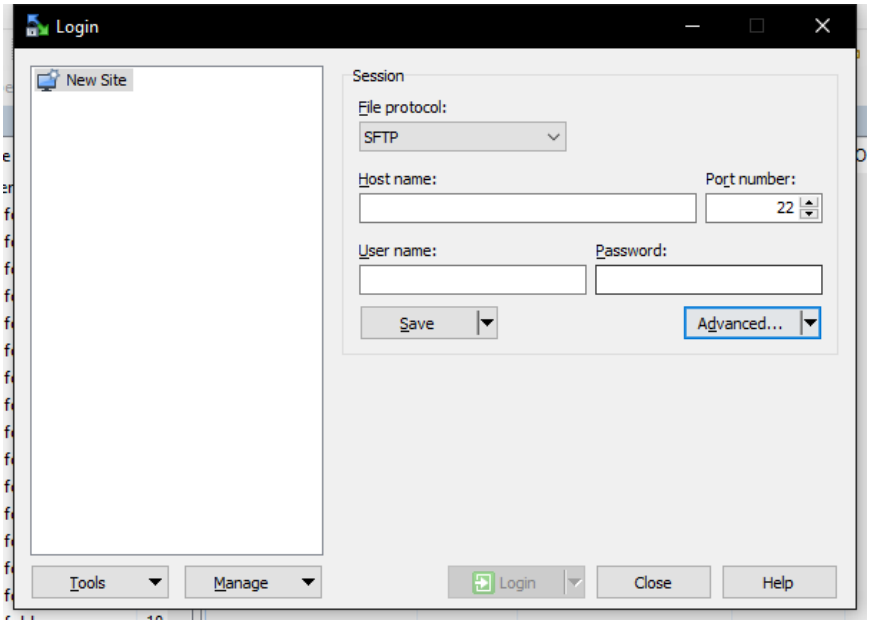


3. Now, you will have the. ppk suffix file as the private key.

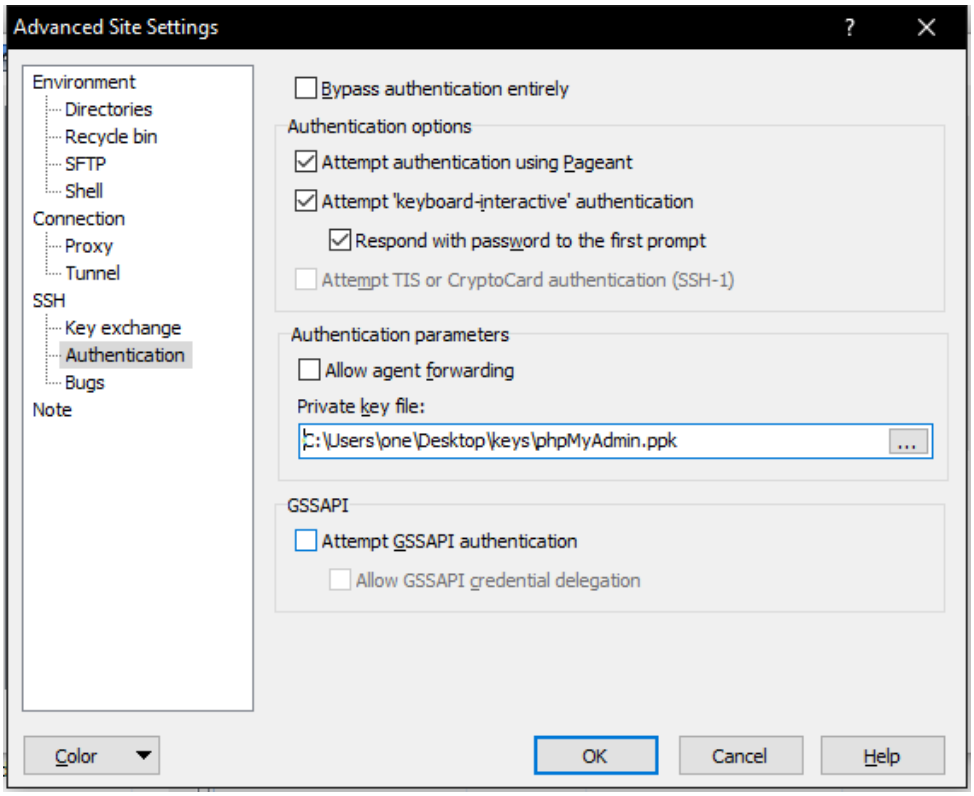
WinSCP

For windows user, after getting the ppk file from previous steps, now install the WinSCP as the GUI console to connect with remote EC2 emulator.

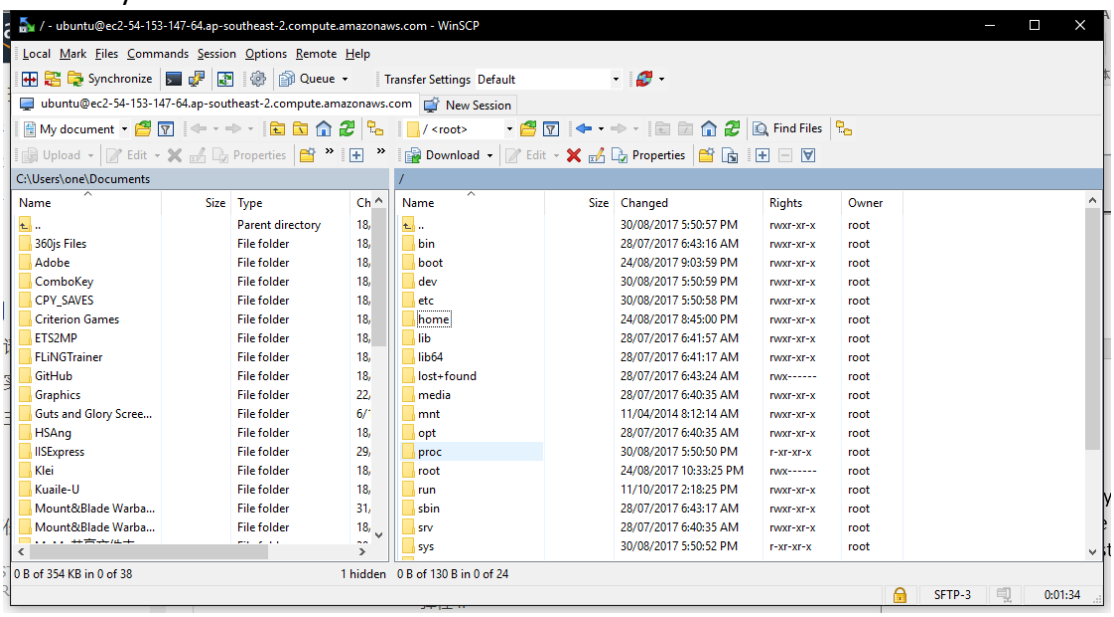
1. Install the WinSCP, which is the windows OS version.
2. Click the Advanced button



3. Click the Authentication and add the ppk file as shown by following image



4. Click Ok then type in the Host name and User name to log in.
   *The host name and user name refers to EC2 host and user name in Required Detail part.
5. After login, the left side is the file system of local system, and the right part is the remote system.



6. Now you can modify the remote system file to add the script to connect with RDS database.

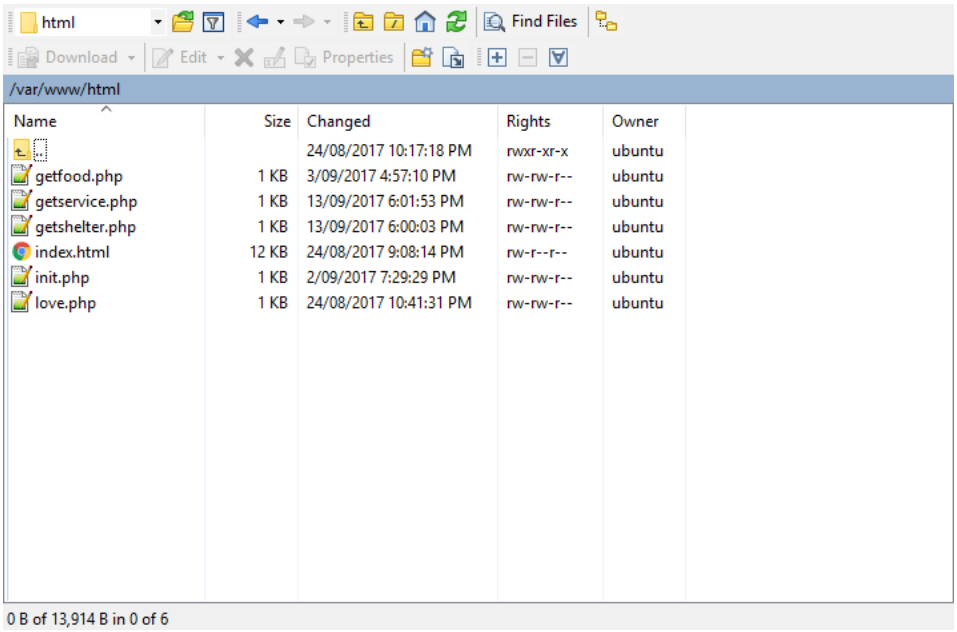
Mac OS console

For mac OS system, user can connect to the remote EC2 emulator directly over mac terminal.

5.5 Connection EC2 and RDS by php Script

In this part, the EC2 and RDS can be connected with each other by php script. Firstly, user should know the basic php language to establish the connection.

1. Go to the /var/www/html over WinSCP



2. Create the new .php file which called init.php
3. Then add the following script to establish the connection

```
<?php
   $db_name = "HMel_DB";
   $mysql_user = "phpMyAdmin";
   $mysql_pass = "phpMyAdmin";
   $server_name = "phpmyadmin.cwuengxhxwzt.ap-southeast-2.rds.amazonaws.com";
   $con=mysqli_connect($server_name,$mysql_user,$mysql_pass,$db_name);
   if(!$con){
      echo "Connection Error....".mysqli_connect_error();
   }else{
      echo "<h3> Database connection Success...</h3>";
   }
   ?>
```

4. If the result shows the Database Connection Success, that means the script can be work and now can create the retrieve data scripts with the database.
5. Here is the sample script for getting all the shelter from online database.
   *For test the result of data, please refers to the URL for retrieve data in Required Details section.

```
$db_name = "HMel_DB";
$mysql_user = "phpMyAdmin";
$mysql_pass = "phpMyAdmin";
$server_name = "phpmyadmin.cwuengxhxwzt.ap-southeast-2.rds.amazonaws.com";

$con = mysqli_connect($server_name,$mysql_user,$mysql_pass,$db_name);


mysqli_set_charset($con,"utf8");

//fetch data from table food in the database
$query = "SELECT * FROM `shelter`";
$result = mysqli_query($con, $query);

//create an array
$emparray = array();

//fetch data and insert into array
    while($row = mysqli_fetch_assoc($result)) {
       $emparray[] = $row;

}

//convert to json
echo json_encode($emparray);

?>
```

6. The result of data from database are in the JSON type, which is easy to transmit and analyze. The Android client can retrieve these JSON then parser them into specified data String.

[{"":{"ID":"1","Name":"Church of All Nations","Description":"Lunch","Who":"Open to everyone","Cost":"$2","Phone":"(03) 9347
7077","Email":"N\/A","Website":"http:\/\/www.carlton-uca.org\/news\/community-support\/community-lunch\/","Address":"180 Palmerston
Street","Suburb":"Carlton","Postcode":"3053","Latitude":"-37.795941","Longitude":"144.968642","Monday":"Closed","Tuesday":"11:00,13:00","Wednesday":"(
{"":{"ID":"2","Name":"Senior Citizen Centres, Food with Friends","Description":"Multicultural lunches: three course meals from different cuisines for older
adults in the City of Melbourne\u2019s Senior Citizen Centres. ","Who":"Older adults (55+)","Cost":"$6.90","Phone":"(03) 9347
7823","Email":"N\/A","Website":"N\/A","Address":"180 Palmerston
Street","Suburb":"Carlton","Postcode":"3053","Latitude":"-37.795941","Longitude":"144.968642","Monday":"Closed","Tuesday":"Closed","Wednesday":"12:00
{"":{"ID":"3","Name":"Anglicare, The Lazarus Centre","Description":"N\/A","Who":"Chronic homeless and rough sleepers","Cost":"Free","Phone":"(03) 9419
3288, 0458 750 031","Email":"N\/A","Website":"http:\/\/www.anglicare.org.au\/crisis-aid","Address":"15 Gisborne Street","Suburb":"East
Melbourne","Postcode":"3002","Latitude":"-37.80991","Longitude":"144.975486","Monday":"7:00,9:00","Tuesday":"7:00,9:00","Wednesday":"7:00,9:00","Thurs
{"":{"ID":"4","Name":"Matthew Talbot Fitzroy Soup Van","Description":"Sandwiches, sausage rolls, meat pies, pasties, tea\/coffee and cordial","Who":"Open t
everyone","Cost":"Free","Phone":"(03) 9895 5802","Email":"N\/A","Website":"info@sudp.vic.gov.au","Address":"Lansdowne Street","Suburb":"East
Melbourne","Postcode":"3002","Latitude":"-37.812135","Longitude":"144.977992","Monday":"20:00","Tuesday":"20:00","Wednesday":"20:00","Thursday":"20:
{"":{"ID":"5","Name":"The Flemington and Kensington Community Lunch","Description":"Lunch","Who":"Open to
everyone","Cost":"Free","Phone":"N\/A","Email":"N\/A","Website":"N\/A","Address":"Corner of Church and High
Streets","Suburb":"Kensington","Postcode":"3031","Latitude":"-37.784176","Longitude":"144.931927","Monday":"12:00,13:00","Tuesday":"Closed","Wednesd
{"":{"ID":"6","Name":"Senior Citizen Centres, Food with Friends","Description":"Multicultural lunches: three course meals from different cuisines for older
adults in the City of Melbourne\u2019s Senior Citizen Centres. ","Who":"Older adults (55+)","Cost":"$6.90","Phone":"(03) 96589190, (03) 9658

6 Database Characteristic

Food		
Name of attribute	Type	Description
ID	Int(6)	Auto increment number
Name	varchar	Name of the food place
Description	Varchar	General description
Who	Varchar	General description
Cost	Varchar	Some places have charge and some don’t. just the price if any and Free if not.
Phone	Varchar	Phone number and N/A if there is no number
Email	Varchar	Email address and N/A if there is no email
Website	Varchar	Website address and N/A is there is no website
Address	Varchar	Description of the address
Suburb	Varchar	Suburb name
Postcode	Int(4)	Post code number
Latitude	Varchar	Coordinates number
Longitude	Varchar	Coordinates number

Monday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Tuesday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Wednesday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Thursday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Friday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Saturday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Sunday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day

Services		
Name of attribute	Type	Description
ID	Int(6)	Auto increment number
Name	Varchar	Name of the place
Category	Varchar	Alcohol problems support service, Gambling problems support service, General support service, Health service, Legal information advise, Sexual Assault support service and Travel support
Gender	Varchar	F if facility only for females and M if for male only and F M if both are welcome
Description	Varchar	General description
Phone	Varchar	Phone number and N/A if there is no number
Email	Varchar	Email address and N/A if there is no email
Website	Varchar	Website address and N/A is there is no website
Address	Varchar	Description of the address
Suburb	Varchar	Suburb name
Postcode	Int(4)	Post code number
Latitude	Varchar	Coordinates number
Longitude	Varchar	Coordinates number
Monday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Tuesday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Wednesday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Thursday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day

Friday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Saturday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Sunday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day

Shelter		
Name of attribute	Type	Description
ID	Int(6)	Auto increment number
Name	Varchar	Name of the place
Sex	Varchar	F if facility only for females and M if for male only and F M if both are welcome
child	Varchar	Y if the shelter accepts children and N if it does not
AgeGroup	Varchar	Accepted age range. For example 12 ... 25
Description	Varchar	General description
Phone	Varchar	Phone number and N/A if there is no number
Email	Varchar	Email address and N/A if there is no email
Website	Varchar	Website address and N/A is there is no website
Address	Varchar	Description of the address
Suburb	Varchar	Suburb name
Postcode	Int(4)	Post code number
Latitude	Varchar	Coordinates number
Longitude	Varchar	Coordinates number
Monday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Tuesday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Wednesday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Thursday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Friday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Saturday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day
Sunday	Varchar	Hours range of working time for example 12:00,14:00 and 'Closed' if they are closed in that day

7 Error Conditions

There are some error conditions when using this application, the detail is described below.

7.1 System-wide Error

In terms of System-wide error, the application requires:

1. The android System version need to require minimum version 5.1.1. Some important functions such as Action bar attributes and tab fragment will be lost if the android System does not meet the minimum version.

2. The android System must have the google map application and the google service, because the map navigation function is based on google map application.

3. The android System must connect to the Internet when the application is first used because the relative data need to be retrieved from Internet.

8 Test cases

The Acceptance test cases are shown below.

Tested Date:	
Retested Date:	
Activity	Pass/ Fail
Function A Homeless person	
Can view nearby all facilities on the main page.	Pass
	Pass
Can click the nearby facilities on the main page.	Pass
Can view the detail page of the facilities after clicked the nearby facilities on the main page.	Pass
Can see all the facilities we supply on the category page (shelter, food, service, water, toilet and weather forecast).	Pass

Can click each category icon.	Pass
Can view a list of the facilities after they clicked the shelter, food or service icon.	Pass
Can search the shelter, food or service by name.	Pass
Can search the shelter, food or service by suburb.	Pass
Can search the shelter, food or service by postcode.	Pass
Can filter the shelter, food or service by open status.	Pass
Can view the detail page of the facilities after clicked the facilities on the list page.	Pass
Can view the facility on a map in the detail page.	Pass
Can zoom out and zoon in the map.	Pass
Can see the current location by click the location icon on the top-right of the map.	Pass
Can see a navigation option after click the point on the map.	Pass
Can get a navigation on google map app once click the navigation icon.	Pass
Can view location, phone, website, suburb, open time and brief description on the detail page.	Pass
Can view the nearest drinkable water location on the map after click the water icon on the category page.	Pass
Can view the nearest public toilets location on the map after click the water icon on the category page.	Pass
Can view general setting, contact us and about us on the setting page.	Pass
Can set their gender and child condition in general setting.	Pass
Can send feedback email to the developer team in contact us page.	Pass
Can view developer team information and copyrights in about us page.	Pass
Function B Weather Forecast	
User can view real-time weather information on the main page.	Pass
User can see a forecast icon on the category page.	Pass
User can click the forecast icon.	Pass

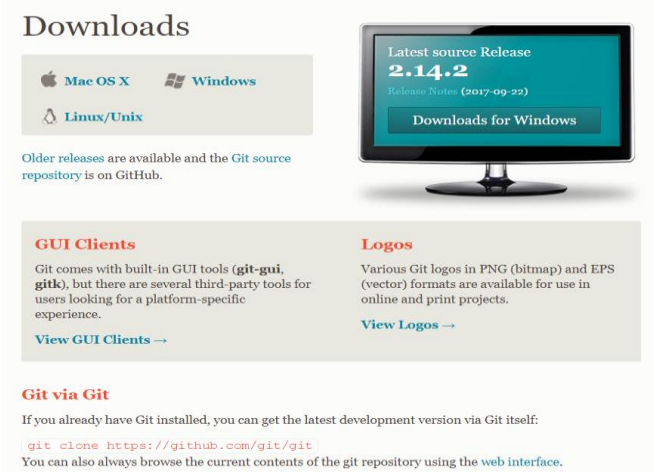
User can view next 6 days weather forecast by clicking the weather forecast icon.	Pass
Function C News	
User can view news about the homeless topic on the news page.	Pass
User can view brief image and description about each news.	Pass
User can click each news.	Pass
User can jump to the news website after click the news.	Pass
User can come back to the application by click the return key.	Pass

9 Back and Recover process

Requirements

Ensure that User install the Git and GitHub plugin on the computer and set the correct configuration on Android Studio.

1. Download the git (https://git-scm.com/downloads)
   Choose the corresponding operation system



2. Sign up or create a GitHub account if needed
3. When finishing installation of Git, Open the project in android studio and go to File -> Settings -> Version Control -> Git.

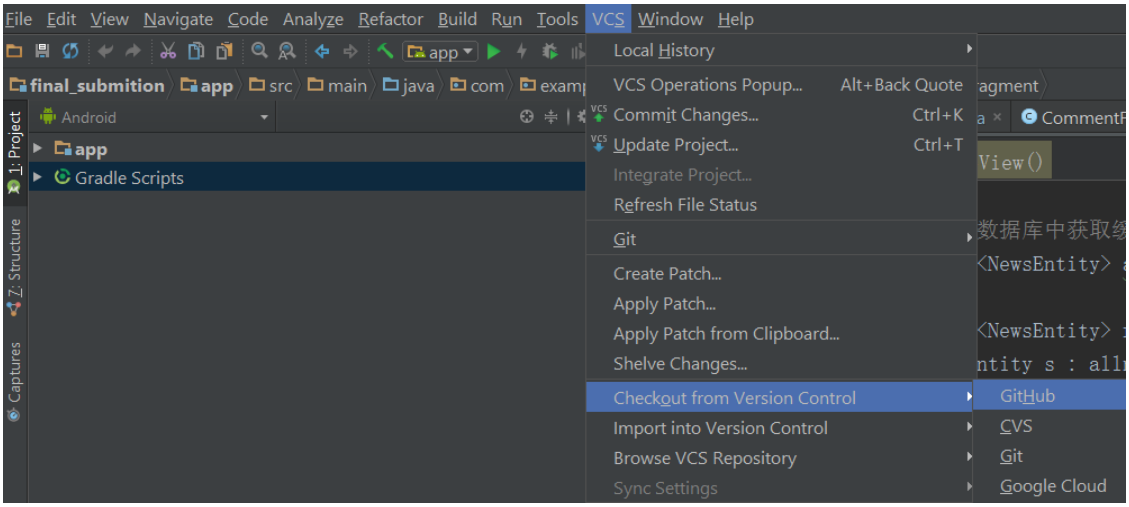
4. Click on test button to test "path to Git executables". If successful message is shown everything is ok, else navigate to git.exe from where you installed git and test again.
5. Go to File -> Settings -> Version Control -> GitHub. Enter your email and password used to create GitHub account and click on OK button.
6. Then go to VCS -> Import into Version Control -> Share Project on GitHub. Enter Repository name, Description and click Share button.
7. In the next window check all files in order to add files for initial commit and click OK.

9.1 Recovery

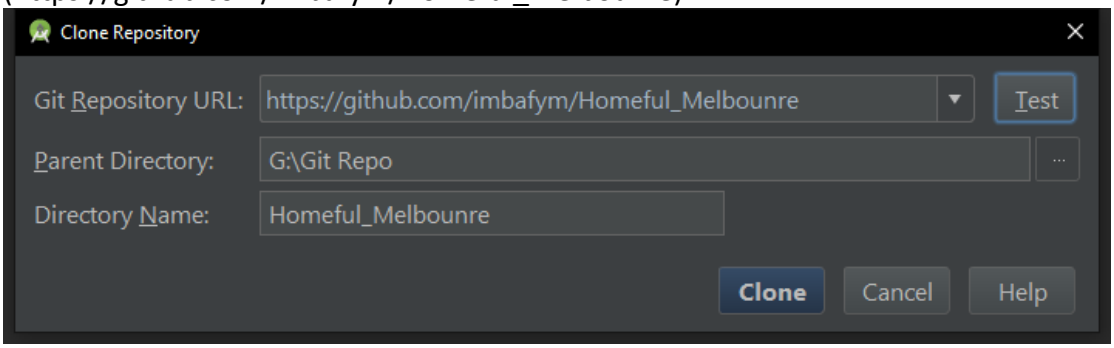
Homeful Melbourne application is developed on Android studio IDE, and use GitHub as the version control system. User can recovery the application by using git service from GitHub.

Git URL: https://github.com/imbafym/Homeful_Melbounre

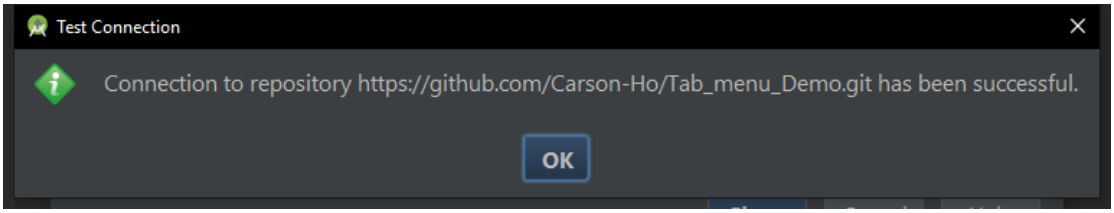
1. For first Using, User should use Android Studio to load the source code on local storage.
2. Click VCS → CheckOut From Version Control → Git or GitHub



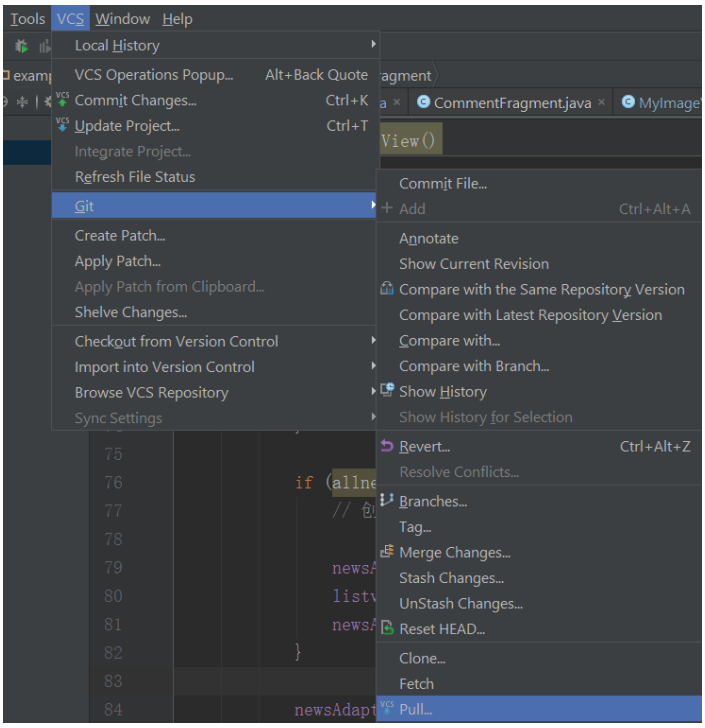
3. Select the URL of Homeful Melbourne on GitHub (https://github.com/imbafym/Homeful_Melbounre)



4. Click Test button to ensure the URL is valid



5. Then click Clone to the local system storage.
6. For user who has the old version source code, click the VCS → Git → Pull

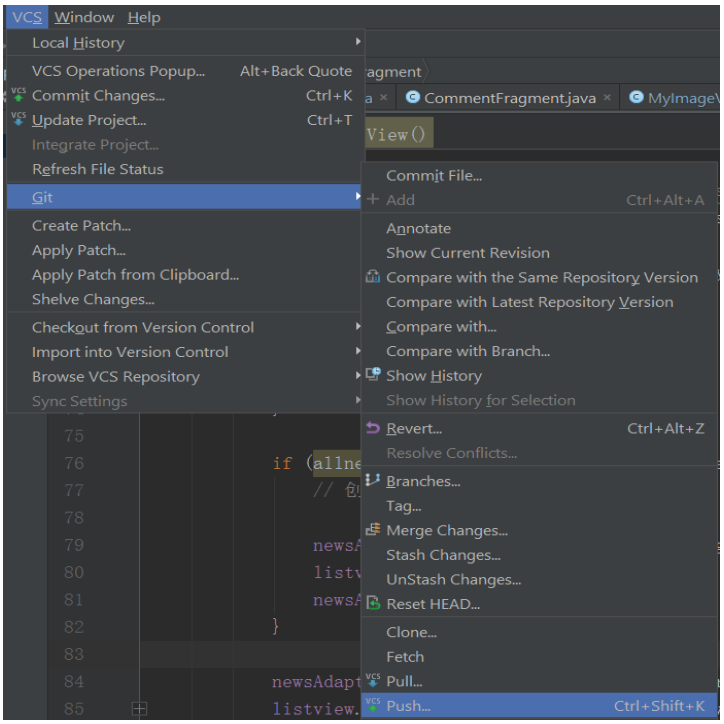


7. Then the latest version will be download to the local storage.

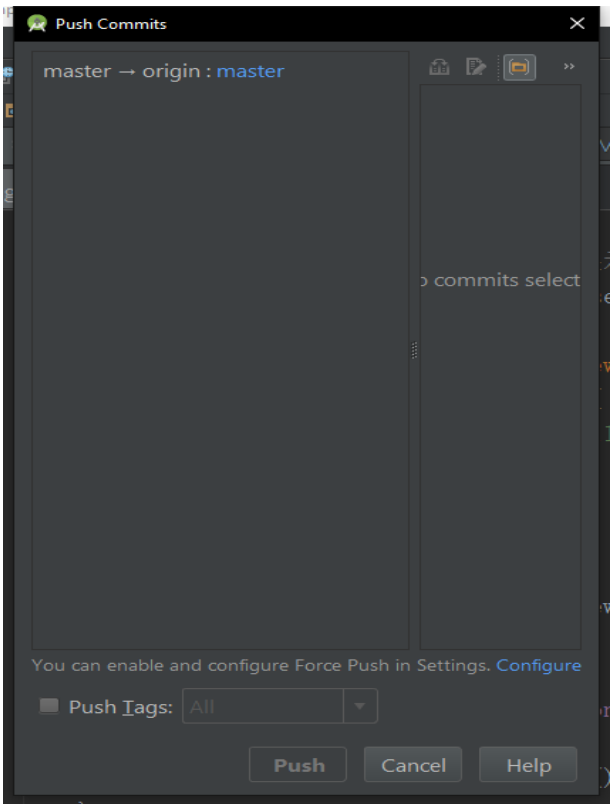
9.2 Backup

When user want to back up the source code or application to GitHub, there are some similar steps as recovery on GitHub.

1. For user who has the old version source code, click the VCS → Git → Push



2. If there is no change on the both old version and new version, click push to back up the code on the GitHub server.



3. Then the current version is updated on the cloud GitHub repository.