Mobile Applications Development Coursework

SET08114

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Introduction

Loc Saver is a simple application with functionality of creating a list of favoured localizations based on Google Maps.

An inspiration for creating app was a need to have a simple tool for saving and reading location as quick as possible and in simplest possible way. Applications like Google Maps, Via Michelin or Here Maps are great tools with various features including location saving but require some level of technical knowledge. The target user for Loc Saver will be elderly person, non-advanced smartphone user or simply a user being in rush who needs very fast access to his locations

An app uses only two activities, main activity contains a list of locations and help button with instruction tooltip while second activity is a Google Map with functionality of saving a locations, navigation and redirection to full version of Google Maps if needed.

Loc Saver is based on app used in Udemy Rob Percival's course "The Complete Android N Developer Course". Rob's "Memorable Places" has only basic functionality of saving locations while Loc Saver has been enhanced with feature of editing and deleting locations on long tap with dialog window with selection and help button.

Description of an interface:

Title page: Title page loading when the app starts. It should be custom graphics with app logo. A tittle page should disappear from screen after some time (2-3 second) with some animation effect (fade out and some shape changing effect). When a Title Page disappear, a Home Page should appear on screen.

Background: Some image of big town with street and building taken from above. Don't use satellite image as it is not very original. An image should be rather in darker colour tones.
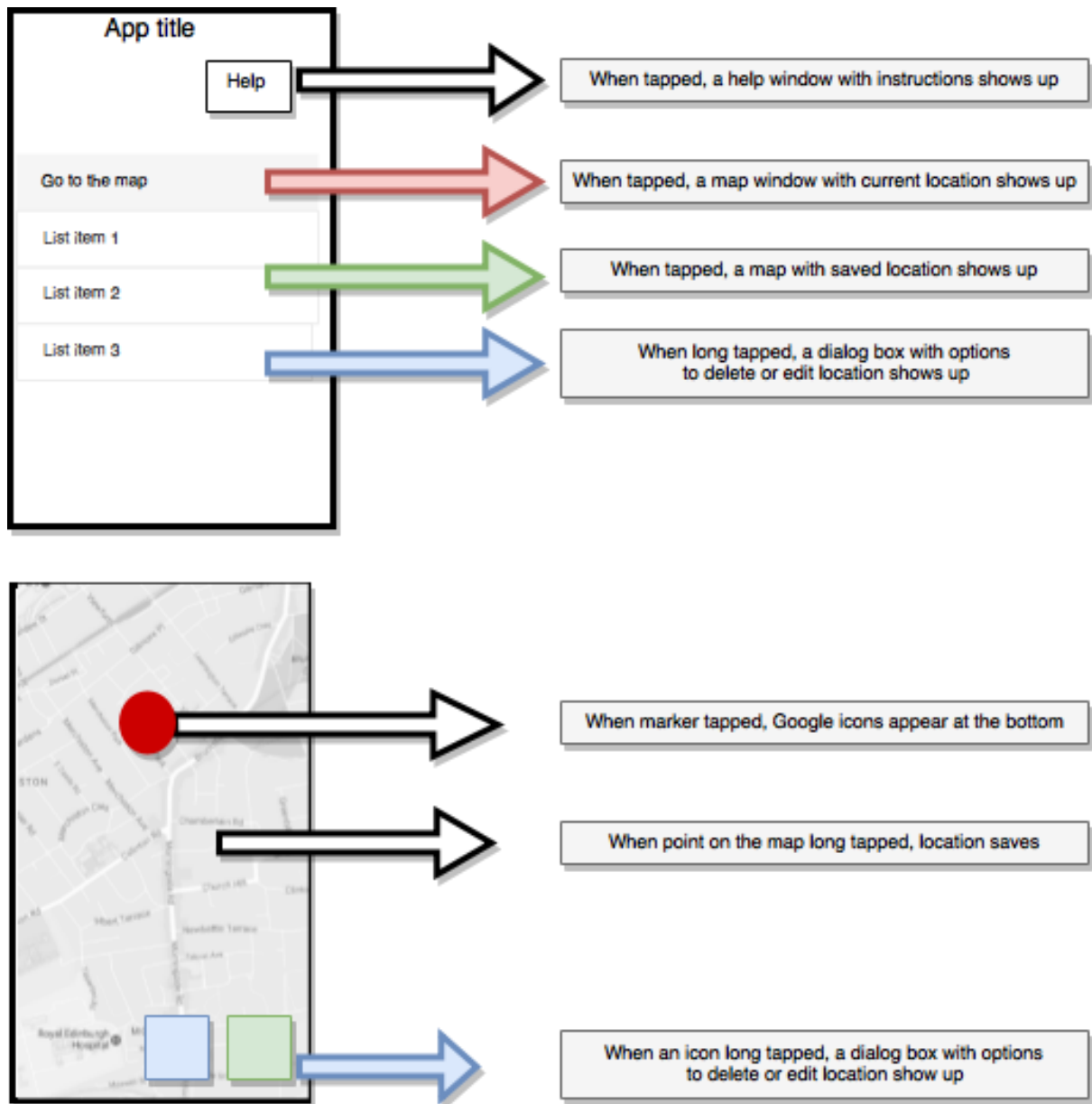
Locations list: Located in central area of a page, occupying at least ¾ of screen height. Individual list cells should be translucent with darker tint to make a white text more visible against the inconsistent background. A text colour should be white, optionally with dark shadow. A first row should have different background to be recognizable as a one for adding new location (Inverted colours to regular cells). It also need to be locked for being modified.

Fonts: Sans-serif

Sounds: no sound

Language: English

Desired app behaviour:

App title

Help — When tapped, a help window with instructions shows up

Go to the map — When tapped, a map window with current location shows up

List item 1

List item 2 — When tapped, a map with saved location shows up

List item 3 — When long tapped, a dialog box with options to delete or edit location shows up

When marker tapped, Google icons appear at the bottom

When point on the map long tapped, location saves

When an icon long tapped, a dialog box with options to delete or edit location show up

Data persistence: User data should be saved on a device storage.
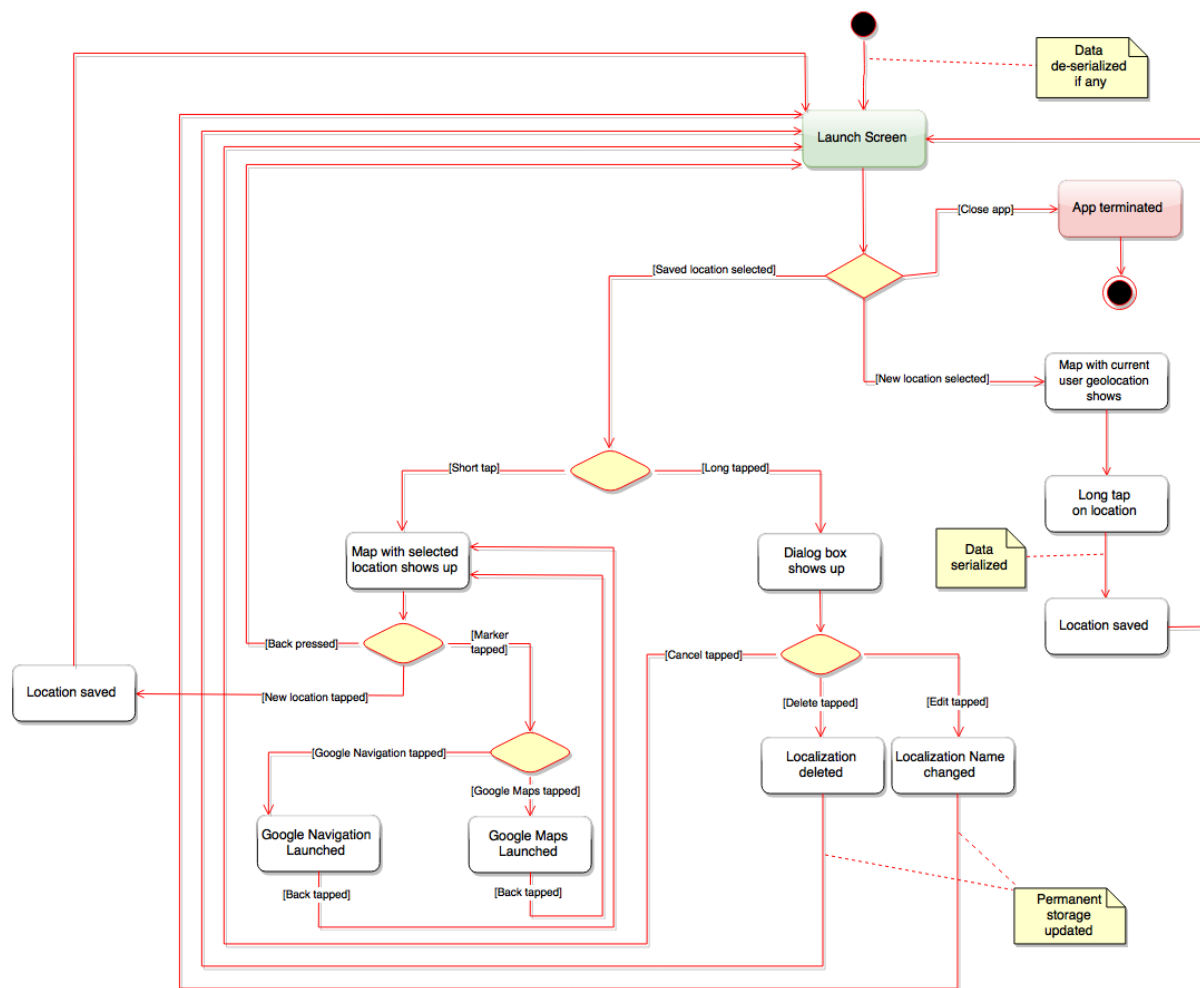
Software design

Fig 1) Activity Diagram for managing locations

Fig 2) Use case diagram

When an app is starting, a short animation will be shown with graphics and the app title.

First activity – a list of locations.

First activity contains a list with one item called "Go to the map…", app name and help button. When user tap on the list item a second activity opens containing Google Maps map.

- When "Go to the map…" item is tapped on the list, user is taken to the screen with map and has a chance to choose and save a new location
- When one of saved location item is tapped on the list, user is taken to the screen with selected location on the map (Fig 3)

When question mark button is tapped, help window pops up with button OK to dismiss the window *(Fig 4)*

When an item on the list is long tapped, a dialog box shows up with options for editing name of location, deleting location or dismiss the dialog box *(Fig 5). If location in the list is changed, data saved on device storage is updated.*
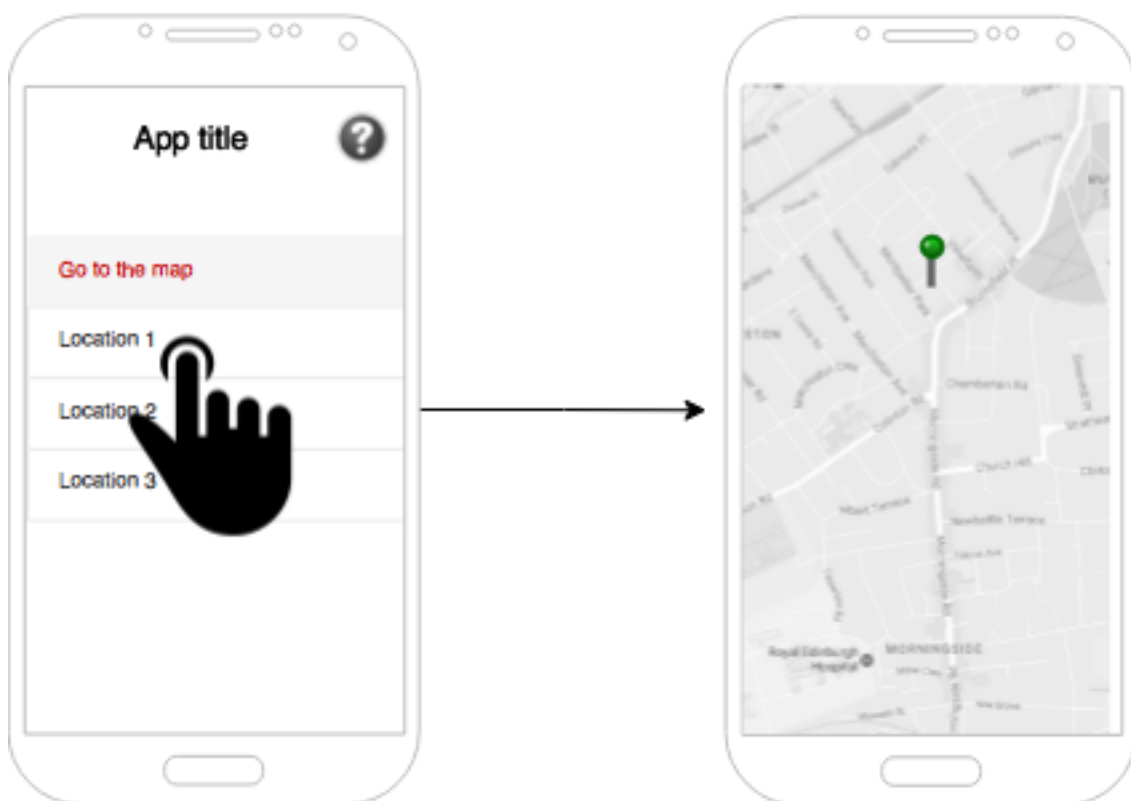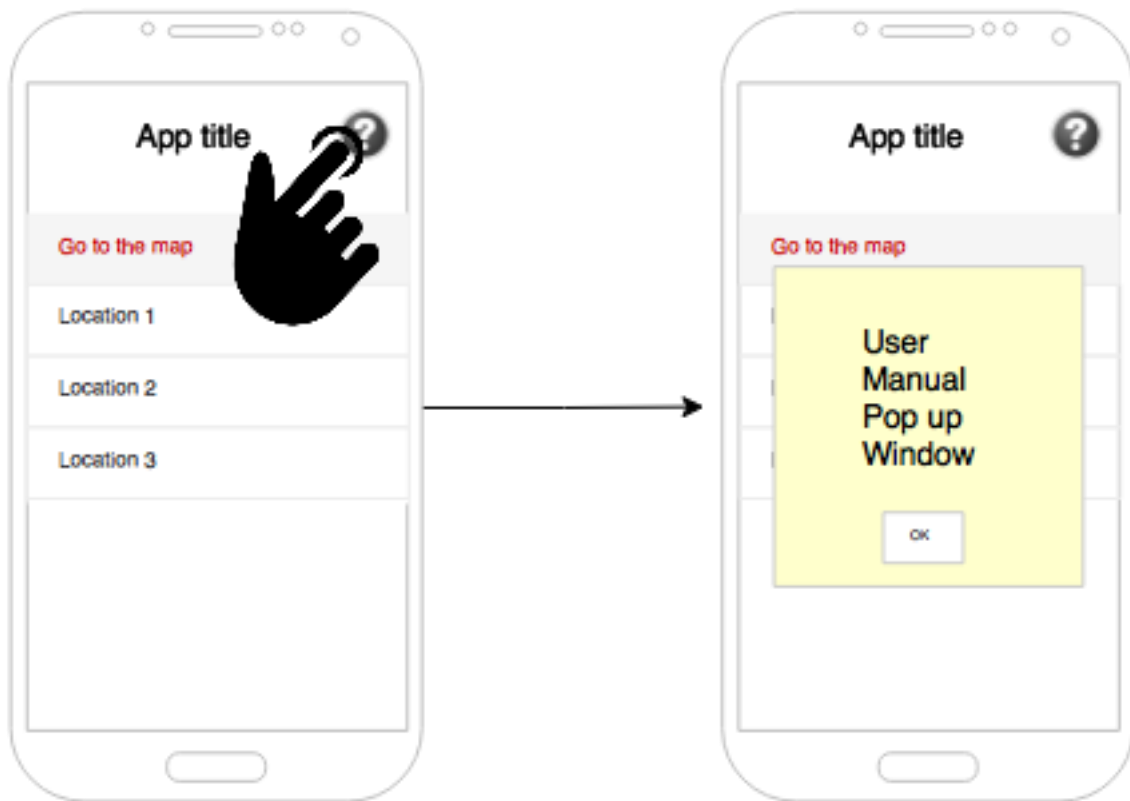

Fig 3) Getting map activity
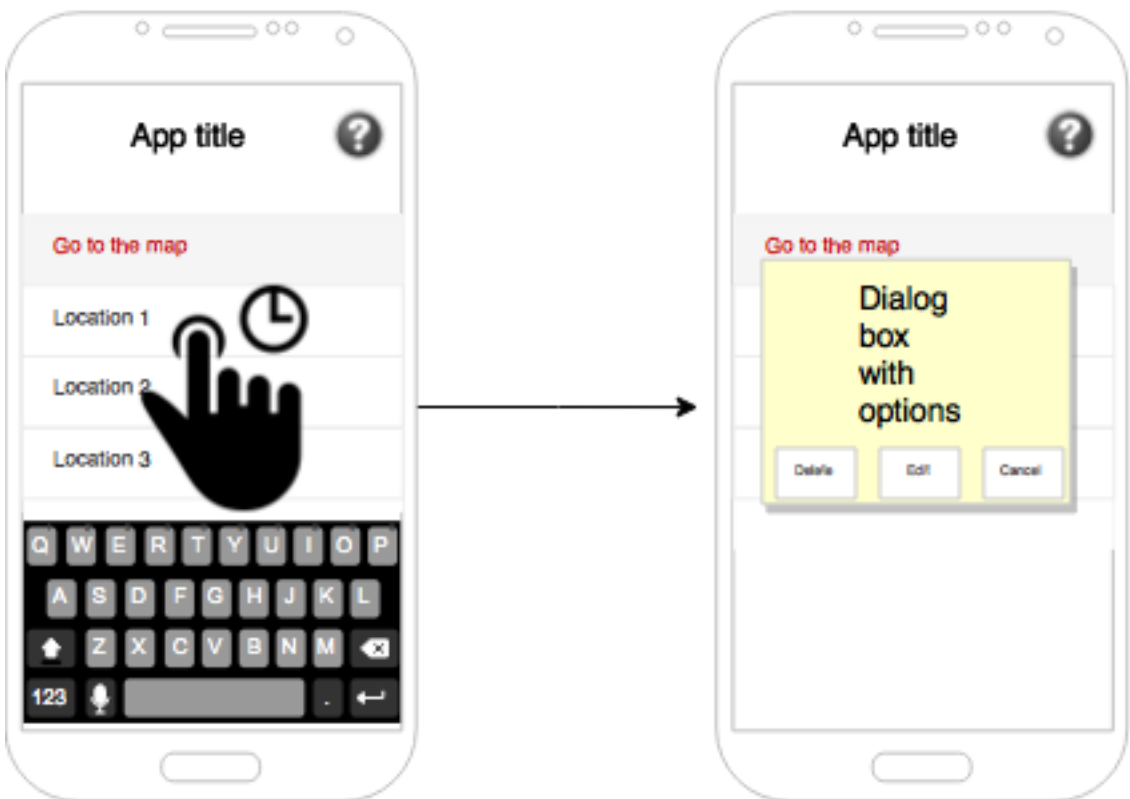
Fig 4) Help button

Fig 5) Edit dialog box on long tap

Second activity – a map

On the second activity, a user can see a selected location or a current user location on the map (zoom parameter: 15). When current location is on the screen a user can add new location by long tapping a point on the map. When new location is created, a message in the toast shows up and data is saved on device storage.

Google Maps options are also available:

- Tilting and rotating map
- Zooming in and out
- Navigation to location when appropriate icon is tapped (Fig 5)
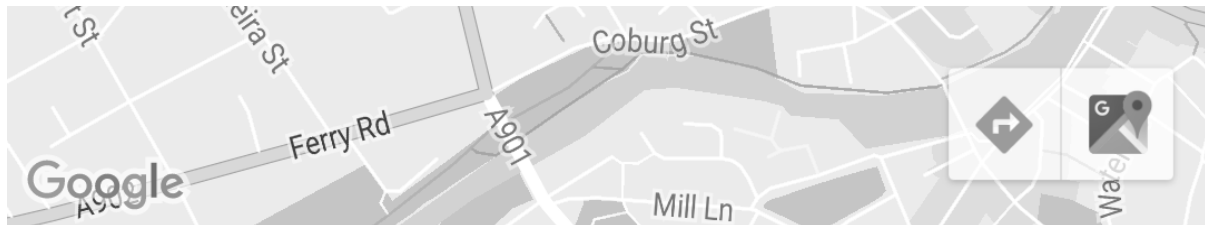- Opening Google Maps App when appropriate icon is tapped (Fig 5)

Fig 5) Navigation and Google Maps icons.

An animation was used to animate a map and cursor when Map Activity is started.

Implementation

An app has all functionality as planned.

When app is started, data is loaded from device storage (if any), a title page with app logo shows up on screen, then fades out with animation. *(Fig 6)*

Home screen appears containing list of saved locations *(Fig 7)* (or one item called "Go to the map…"), an app name, a help button on the top and an author information at the bottom
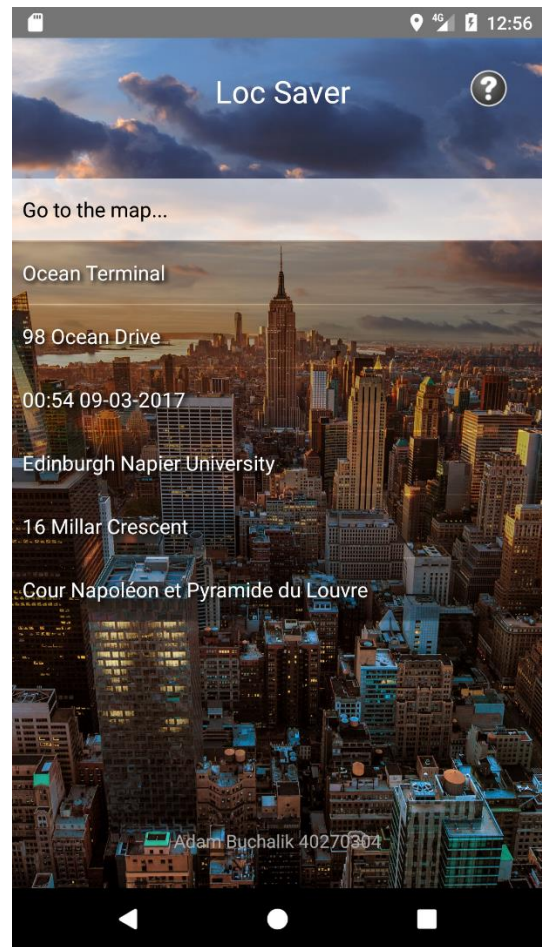

Fig 6) Title page

Fig 7) Home screen

List Items background is translucent and dimmed so its bright text is clearly visible. When "Go to the map…" is tapped, a second screen with Google map shows up waiting for tapping a new location. A long toast shows the information about how to add new location to the list *(Fig 8).* When new location is added, a marker shows up on the map and a toast shows a message "Location saved" (*Fig 9) and data is saved on device storage*. When a marker is tapped *(Fig 10)* a location name is shown in a tooltip and two icons appear at the bottom: Navigation and Google Maps
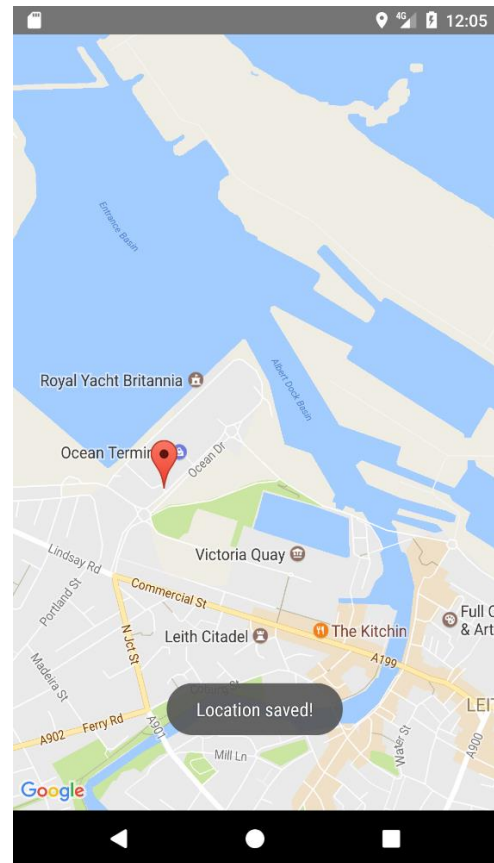
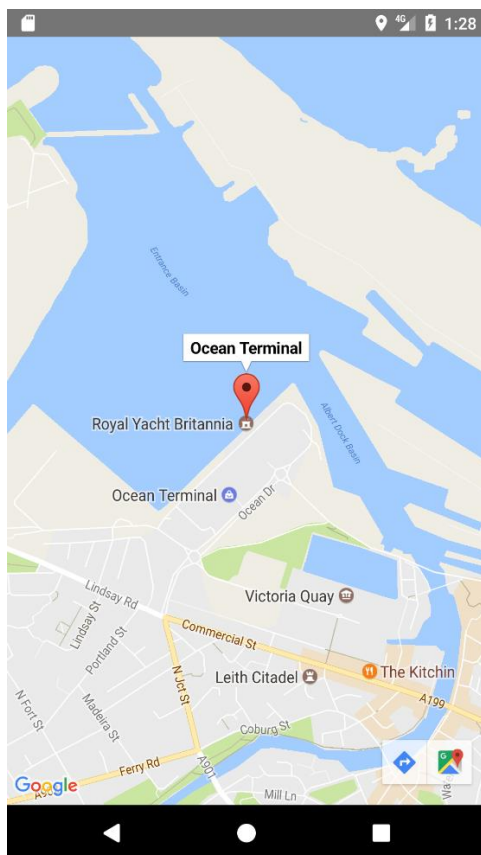*Fig 8) Add new location*

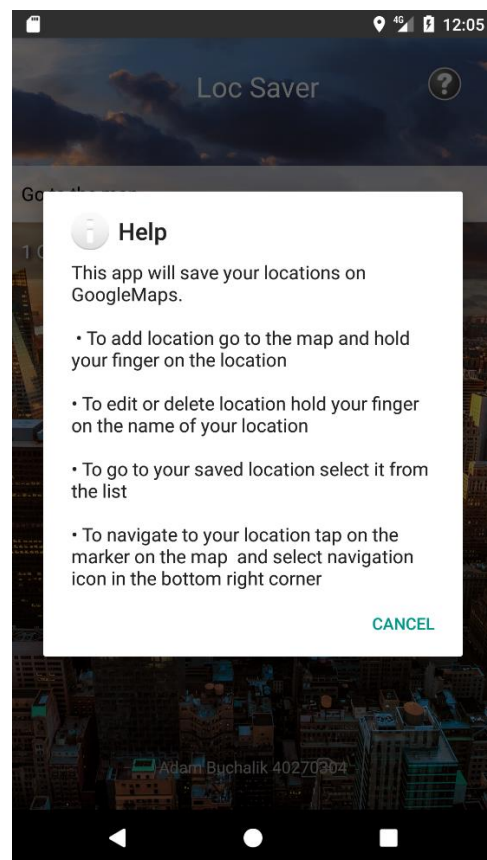*Fig 9) New location saved*

Fig 10) Marker tapped

Fig 11) Instructions

When navigation icon is tapped Google Navigation App is opening, when Google Maps icon is tapped Google Maps app is opening.

When question mark button is tapped on Home Page, instructions shows up in pop up window (Fig11). A Cancel button dismisses the help window.

When an item in locations list is long tapped a dialog box appears with 3 options. Cancel, Edit and Delete *(Fig 12).* When Delete is taped a location is removed from a list, when Edit is tapped a dialog box appears with editable text field and OK button. When modifications are made a data on device storage are updated.
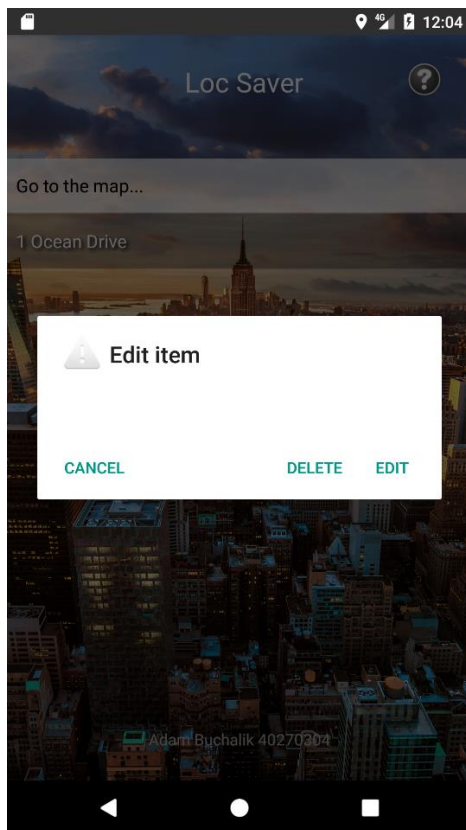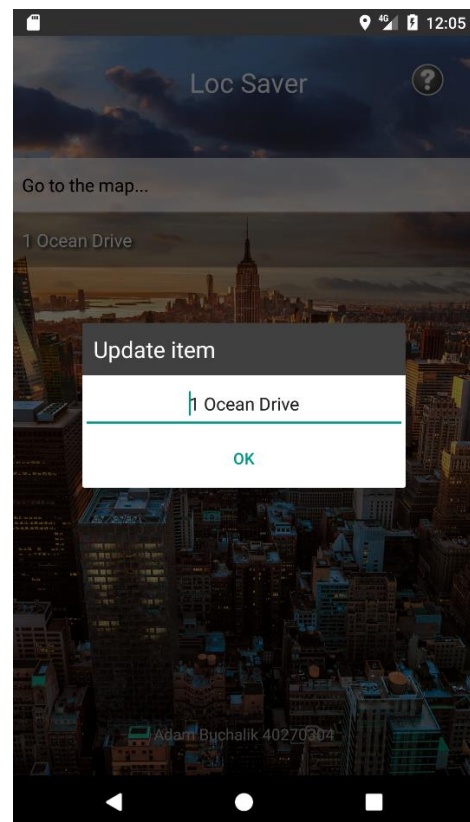

Fig 12) Edit Dialog Box

Fig 13) Edit

An app icon contains app logo and background of Title page *(Fig 13)*

Fig 13) Loc Saver icons

<p style="text-align:center; color:#2E74B5;">Evaluation of implementation</p>

Original project from Udemy has only basic functionality because it was made for training purposes. Following features has been added or modified:

- Title page with animation has been added
- A background image has been added to Home Page
- First item in a list "Go to the map…" has been prevented from making modifications including name changing or deleting. Long click on first item is also impossible. Background and text colour has been also changed to distinguish a first item as a header.
- Toasts has been added to confirm location saving
- Toast with short instruction how to add location to the list has been added
- Help window with instructions has been added
- Editing feature has been added with dialog box
- Deleting feature has been added with dialog box
- Map and marker animation has been added
- App has been locked for portrait mode only
- Serialization update has been added when user modifies locations
- A custom app icon has been created.

There are a lot of Google Maps clones in Google Play Store. In some of them like "Save Location" developed by AlmaTime a user can add an image as thumbnails of saved places next to a name of the location in the list or share location with contacts. "My Location" app developed by Avenue Infotech Dev. Shashikant for example can show map as satellite view. Another apps like "Person Location Tracker" developed by Mbytes can show all Google Maps views: Normal, Hybrid, Satellite, Terrain and automatic adding current location as a user location being tracked. "Family Locator – Phone Tracker" app developed by Sygic on the other hand is able to real-time sharing user location with trusted contact.

All those features are great but the main idea for Loc Saver was not making a clone of Google Maps but its simplified version. If a user needs extra options like satellite view, street view or navigation, they are possible to get when Google icons are tapped in map activity.

The one feature could be implemented in a future version of Loc Saver – storing an image in a list together with location name. The image could be get from device storage or a shortcut to the camera might be implemented on Home Screen with functionality of putting taken photo in ListView.

User feedback

A few users have been asked to test the app and give some feedback:

Andrew, 61yrs old, taxi driver:
"I like the simplicity of an app. I can save my location basically in one tap. My company app has much more sophisticated features but It needs some time to get them while on Loc Saver I can get them straight away"

Sarah, 72yrs old, pensioner, traveller:
"It's great! I have a smartphone but it's so complicated for me. This thing is very simple and intuitive. My son says it's too simple for him though"

Krzysztof, 48yrs old, a bus driver:
"I came to Edinburgh this year and don't know the city very well. I use Google Maps but this Loc Saver is working instantly and if I find some new unknown places in town I can save them instantly in the app. It would be nice if I could take a picture and save it together with a location though"

Resources

Main inspiration of Loc Saver is based on on app "Memorable Places" – a part of course "The Complete Android N Developer", Author Rob Percival, Udemy https://www.udemy.com/complete-android-n-developer-course/learn/v4/overview

Background was edited in GIMP using 227873-landscape-cityscape-building-sunset-USA-New_York_City.jpg file (source 1). Image was cropped to the resolution 1080x1920.

Title page image was combined from dotted-map.png *(source 2)* and 227873-landscape-cityscape-building-sunset-USA-New_York_City.jpg *(source 1)* files and custom logo graphics made with Inkscape and GIMP.

Image resources used in project:

1. nyc_background.jpg http://wallup.net/wp-content/uploads/2015/12/227873-landscape-cityscape-building-sunset-USA-New_York_City.jpg

2. dotted-map.png http://incsub.com/wp-content/themes/incsub_2013/images/dotted-map.png

3. questionmark.png http://www.iconskid.com/white-question-mark-icon-click-the-above-icon-39148.html