AUGGRAFFITI
ASSIGNMENT-1 CHECKPOINT

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Introduction:

Usage of mobile apps has become increasingly prevalent across mobile phone users. With the growing number of people accessing the Internet via smart-phones and tablets, mobile app development has the unique ability to access a large number of potential consumers. As a part of this course, we are developing an android application "AugGraffiti" ,an augmented reality social art game which has a multiplayer game concept where every user gains points on performing certain actions.

Goals:

Here are few design goals that we have setup to complete this project. First and foremost goal is to design a smooth running application. Second goal being well documented code such that the reviewers can understand it appropriately. We have also put a goal to complete our application design on time. We have set up certain checkpoints in our project by which certain functionalities has to implemented and we are following it till date.

AugGraffiti is an augmented reality social art game, where as an artist, the user can place graffiti tags in different locations. A user can also collect tags placed by other artists. Collecting a tag earns the user 100 points, and the artist of that tag also earns 100 points.

- The application has five screens namely Login, Map, Place, Collect and Gallery. These five Activities are supposed to be implemented in the app.
- Whenever the user opens the app, he can place a tag in his current location which can be collected by other users and he can also collect nearby available tags in the range of 50 meters and earn points.
- For placing a tag, a user will have to draw their preferred tag on the screen and rotate the screen for setting the tag orientation and then after all adjustments have been done, user can commit placing the tag by clicking a submit button on the screen.
- For collecting a tag, user will have to rotate the screen to find out the orientation set by the artist of the tag and collect the tag by clicking a collect button on the screen.
- There is a gallery that display all the collected tags on the screen.

Design:

Till now, first two screens i.e Login screen and Map screen with full functionalities have been implemented. Login functionality is implemented in MainActivity and Map screen with all functionalities is implemented in MapsActivity.

On successful login, LocationTracker service is called which uses Location manager and Location listener to get the current Location of the user and also tracks the location of the user. This service runs in background and MapsActivity is called. This Activity loads the GoogleMapScreen and places a P-Tag on user's current location. And also, monitors the change in User's location and updates the P-tag. It also fetches the near tags if available from the Web_API and displays it as C-tag on the map screen.

To monitor the change in location ,we have written a custom interface namely LocationChangeListener, an Interface which implements OnLocationChange method. This method is initialized whenever there is a change in Location caught by LocationListener in LocationTracker service. Then, this change in location is monitored in MapActivity to update the current location marker(P_TAG) of the user.

For sending a POST request, we are using Volley library and initializing the RequestQueue in a singleton class called as WebAPIServer. This class is used to maintain a single RequestQueue and avoids multiple queues for multiple requests to the Web_ApI server.

Strategy:

We have a mutual understanding with regards to the division of labor for the assignment. We have allotted a particular time schedule, apart from our daily class schedule to work for the assignment. We spared equal time, working for the assignment. We exchanged information and gave suggestions to each other in order to achieve the common goal of completing the assignment on time.

We made a flowchart of the complete project and went ahead with implementing initial modules and finally joined all the pieces of the puzzle to complete all the functionalities of the first two screens.

Challenges:

Initially, while implementing Sign In , we did not get the response from the backend server in the GoogleSignIn object and we were getting authorization failure from the backend. This was because we did not properly configure our OAuth Client ID for the project . After a review of the android documentation and information from the internet sources, we configured our client ID again and we could successfully get the response from the backend. The other challenge was tracking the location of the user and notifying the change in location in Maps

activity. After much thought, we implemented LocationChangeListener as the interface which tracks the change in location of the user and notifies it in the Map screen.

Ways to Improve the assignment:

So far, with the work we have done, we noticed that we are learning new things and feel that there is a valuable amount of learning that is involved in android programming. The project is definitely challenging for us as we both are new to android and actually having fun working with this project. An optimal enhancement to the project would be sending the response from the Web_API server in JSON. This would maintain uniformity amongst all requests sent to the server and code would become more modular. We can create an object based on response got from the WEB_API server and Parse it and get information about required fields. Also, in the same way instead of String fields as an input for different requests, we could send a JSON request as well.