CS 442: Mobile Applications Development

Assignment 4 – Inspiration Rewards *(400 pts)*

Uses: Multi-Activity, Location Services, Geocoding, Internet, APIs, Images, Camera, Gallery

A) App Highlights:

- This app allows users within a company or organization to award each other "reward points" (and comments) as a thank you or a commendation for their performance on a task.
- Users can create a profile for themselves and interact with the other users. Users can later edit/update their profile data
- Users start with a fixed amount of points that they can award to other users.
- When a user awards points to another, the point value is deducted from the point total available to give to others. Once a user is out of points to give, they can no longer add new rewards until their points are renewed. Point renewal is not within the scope of this project.
- Assume the process of resetting the points-to-award value (and the actual act of rewarding the employee) are out of scope for this project.
- You will need to create classes to represent the user profiles and the reward assignments.
- We will be using an Amazon Web Services (AWS) based API to as the "back end" which holds user and reward data.

B) Behavior Use Cases and Activities: *Activity/behavior diagrams follow (in section C)*

- Users can create a new profile (via the Create Profile Activity) with data including a username, password, first & last name, administrator flag, department, position, a short self-summary, and a photo. Successful account creation logs in the user and displays the Profile Activity. The Create Profile Activity is displayed by clicking a link on the Login Activity. See diagram "a" in the next section.
- Users login (via the Login Activity) by providing their username and password. A checkbox can be checked to save the credentials so that they are auto-populated whenever the app is started. See diagram "b" in the next section. Upon login, the User Profile Activity is displayed.
- The data displayed in the Profile Activity includes first & last name, username, location, awarded point total, department, position, points available to award, a short self-summary, a photo, and a list of awarded points. See diagram "b" in the next section.
- From the User Profile Activity, the user can open the Edit Profile Activity via Options Menu. The Edit Profile Activity allows the user to edit the password, administrator flag, first & last name, department, position, the short self-summary, and the photo (username cannot be changed). See diagram "c" in the next section.
- From the User Profile Activity, the user can open the Leaderboard Activity (showing all other users, sorted by awarded point total) via Options Menu. From the Leaderboard Activity, an individual user can be selected and then displayed in the Award Activity. From there, rewards points (and a comment) can be awarded to the selected user. See diagram "d" in the next section.

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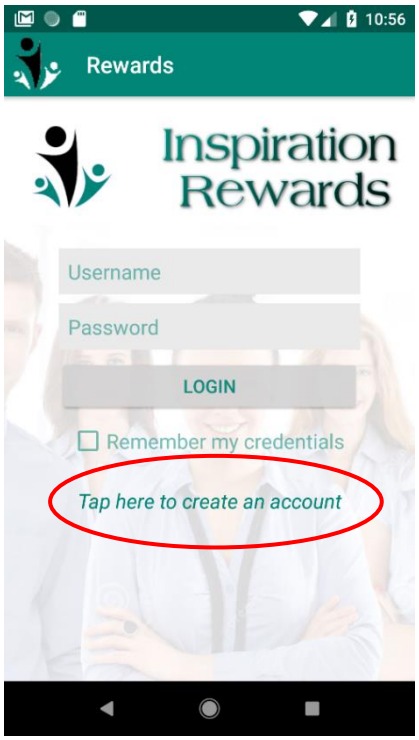
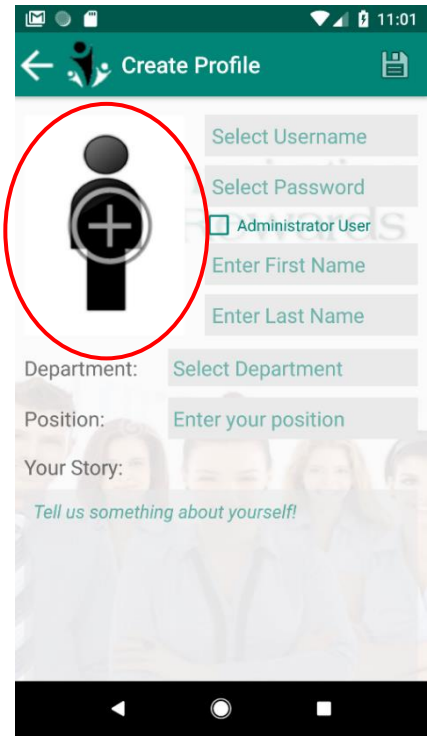
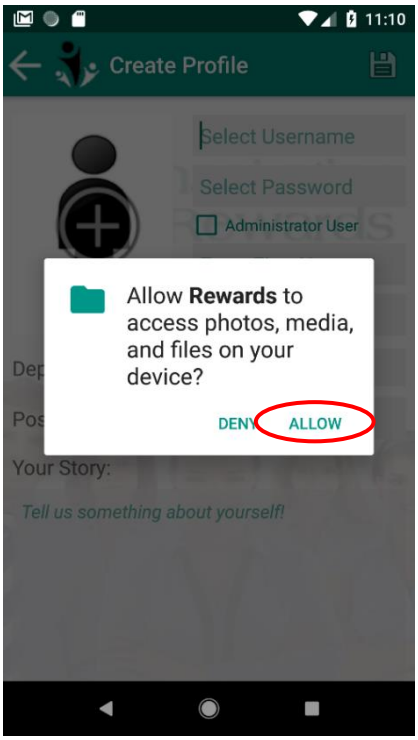
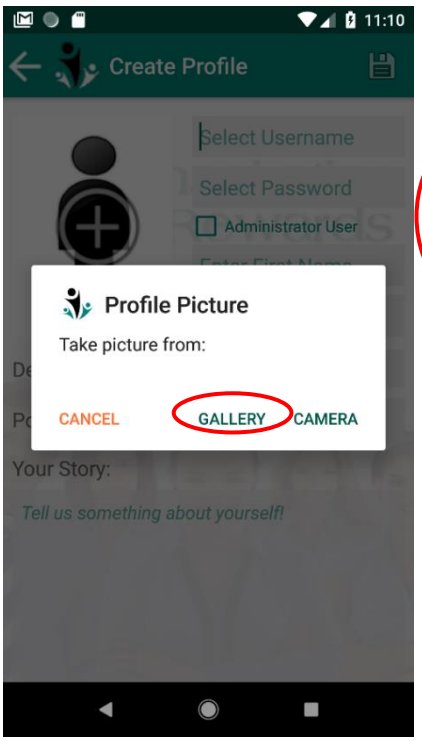
C) Application Behavior Diagrams:

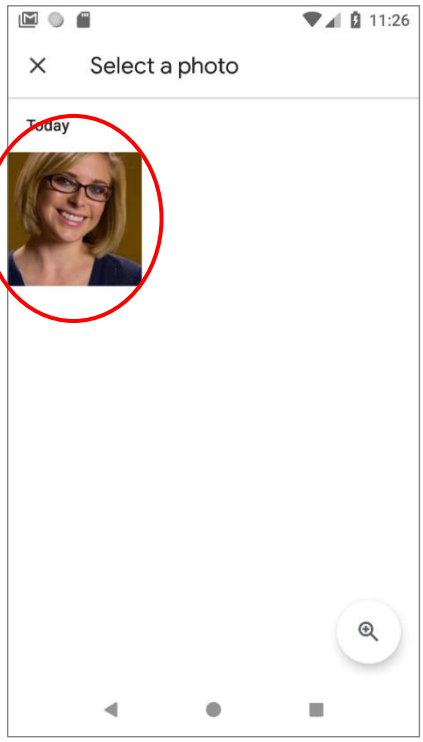
a. Create Profile *(Note, the first time the app runs, it should ask for file and location permissions):*

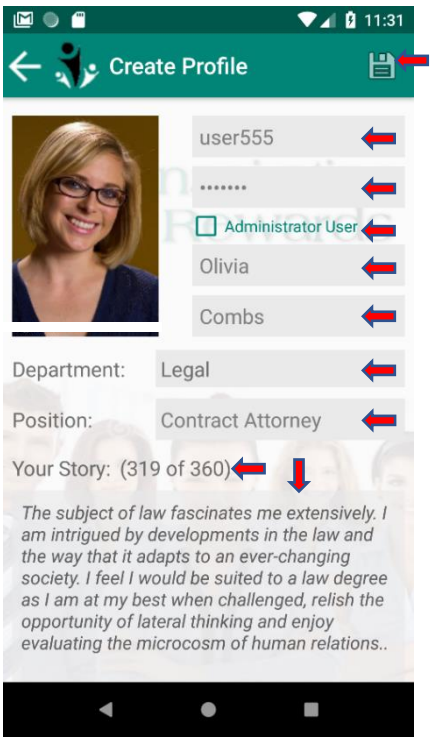


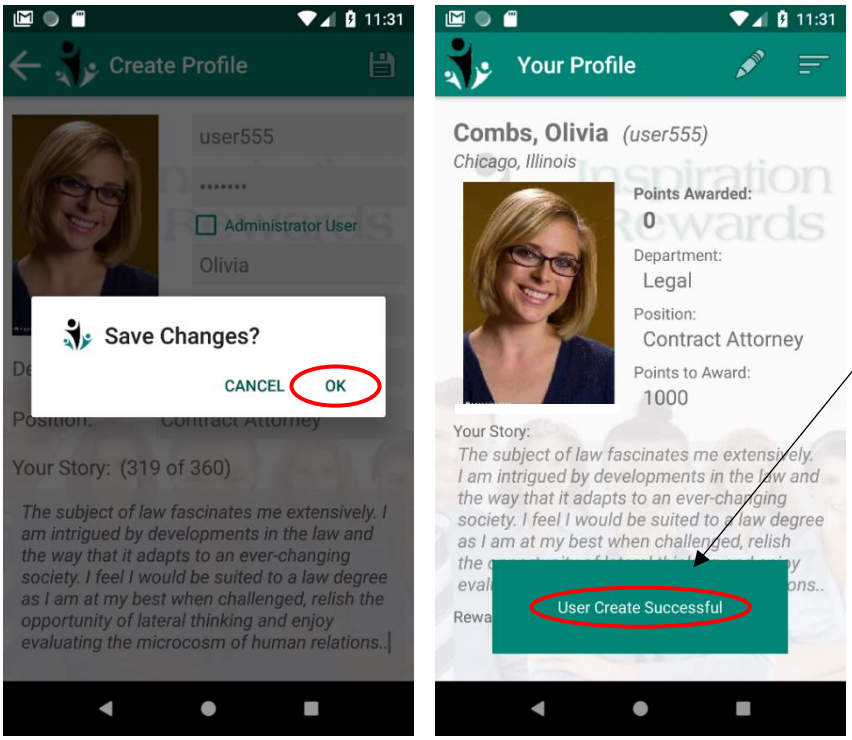




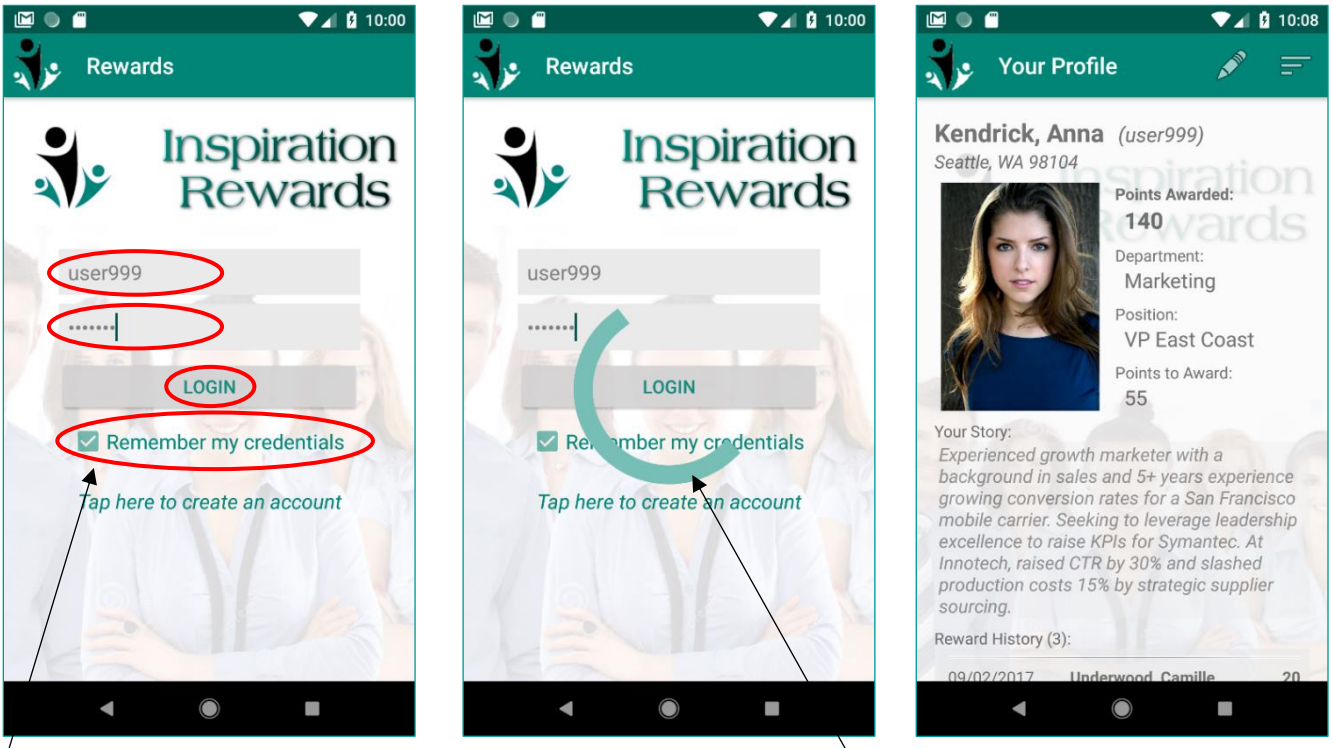


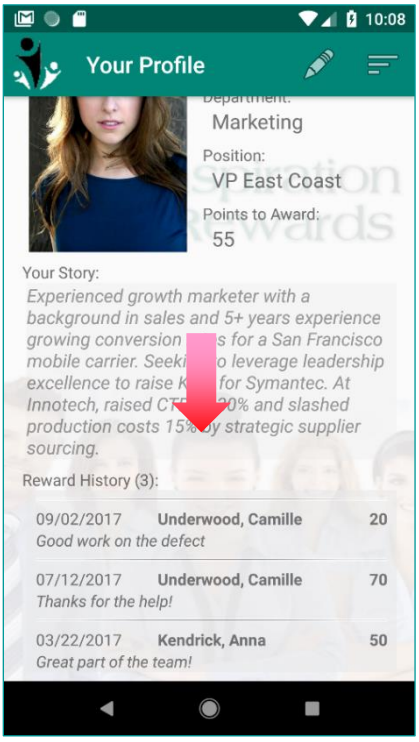






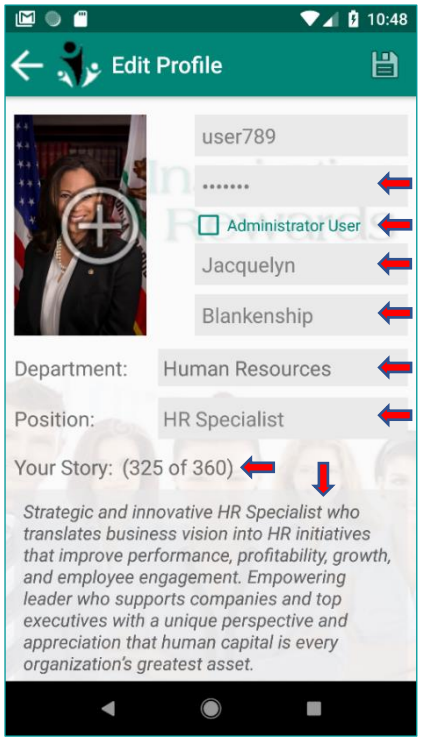
b. User Login *(Note, the first time the app runs, it will ask for file & location permissions):*

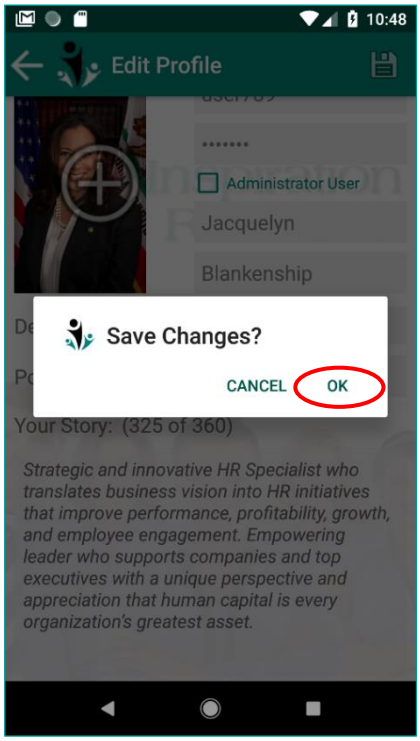




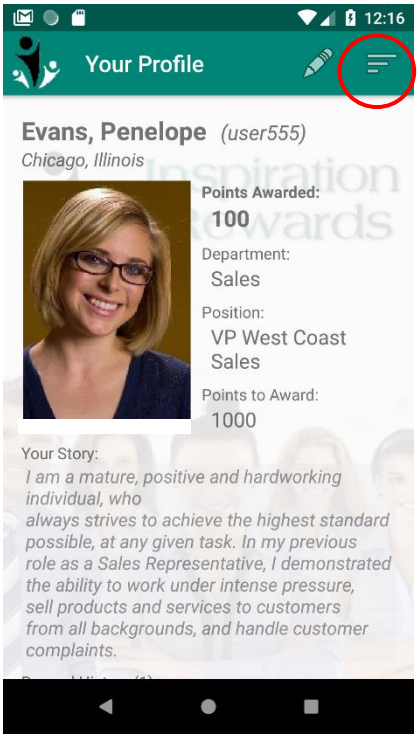
This whole Activity is scrollable

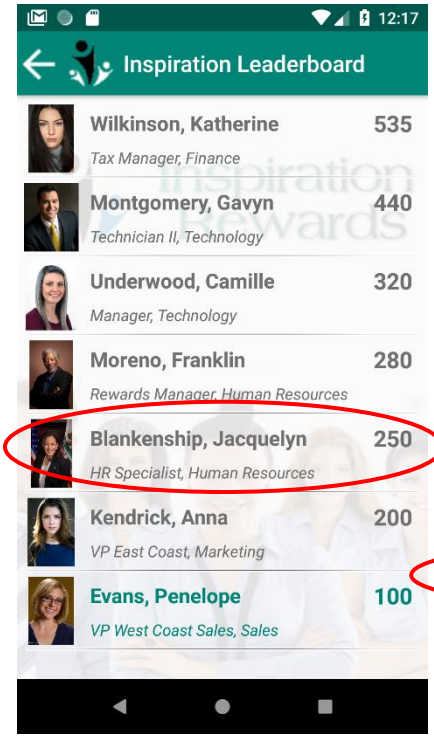
c. Edit Profile

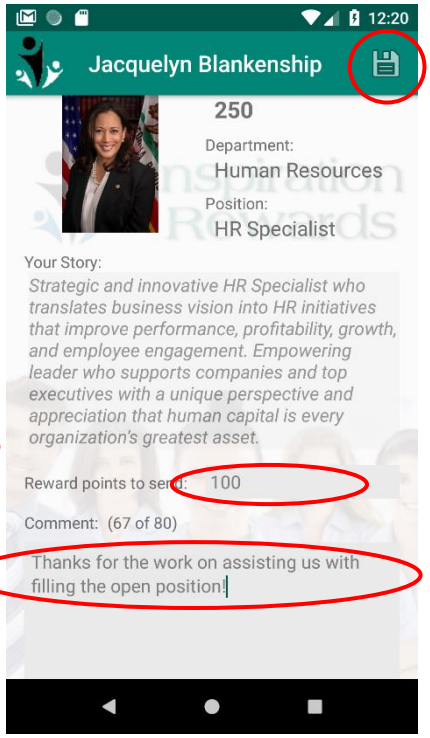




d. Add Rewards







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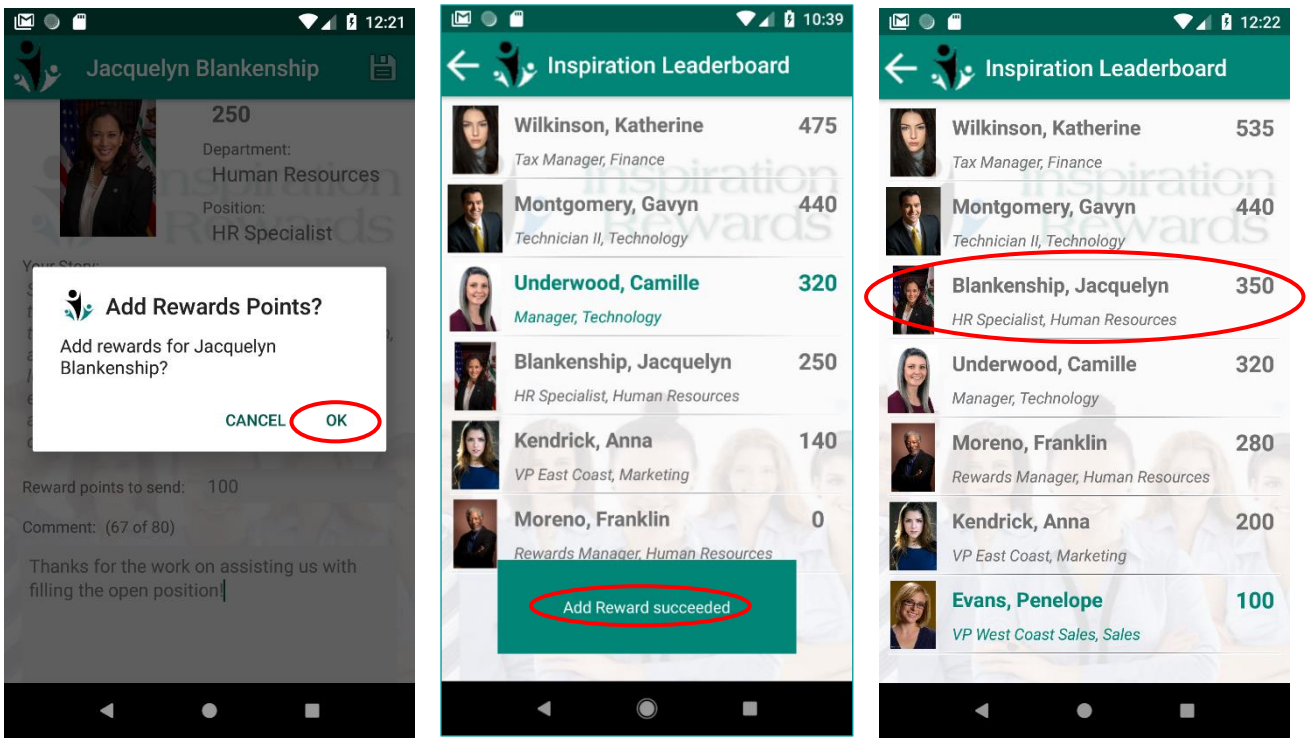
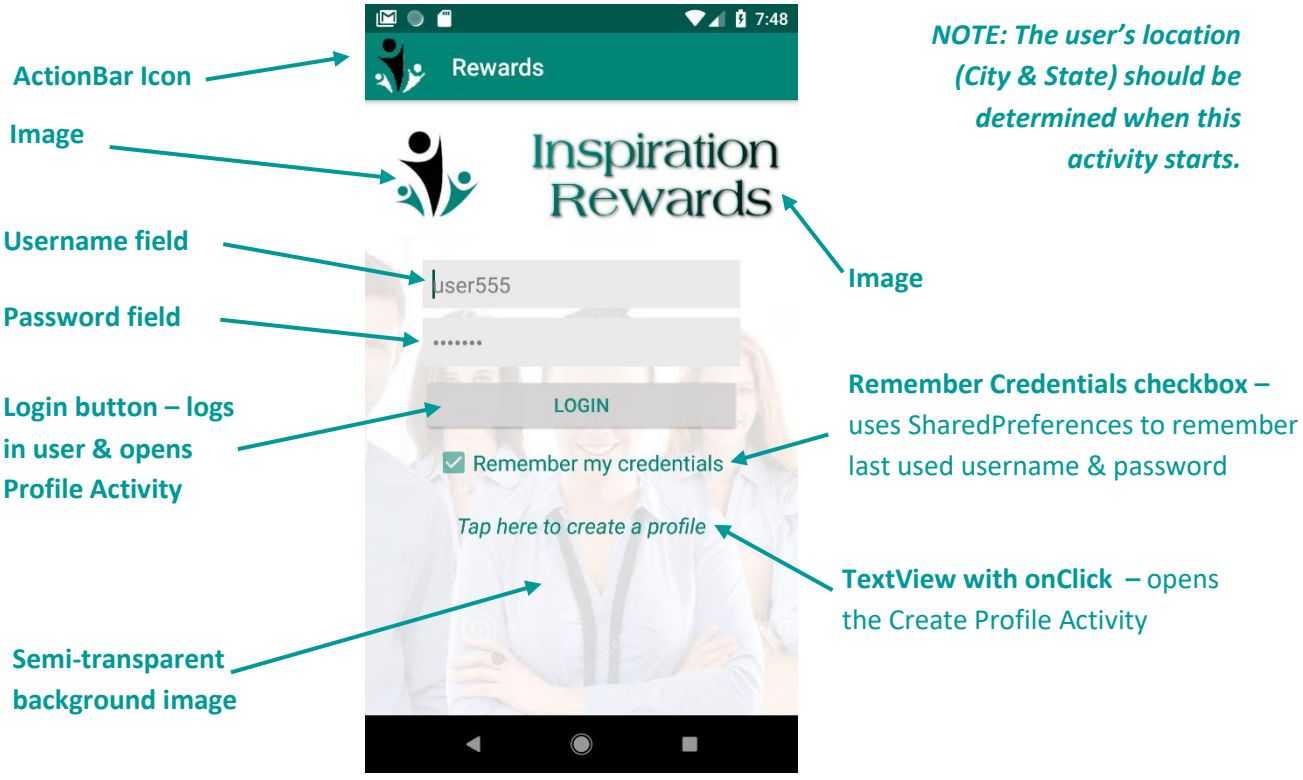
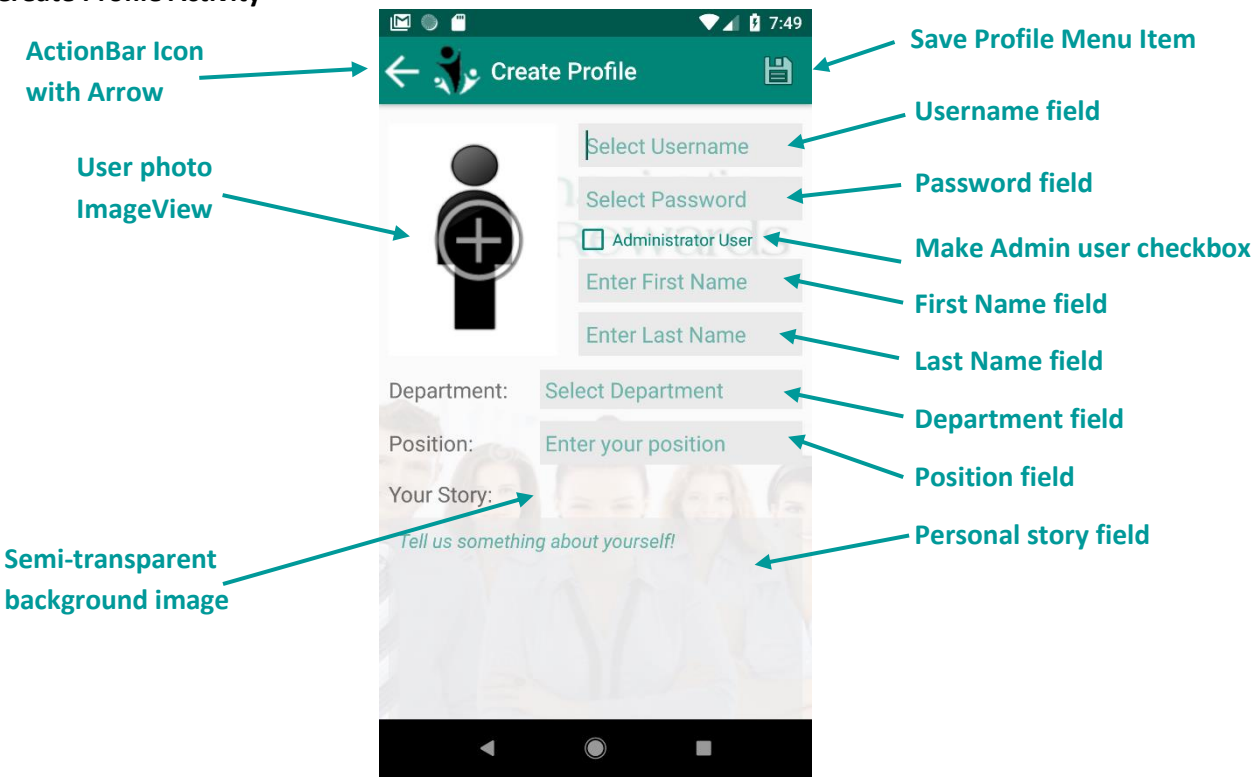


D) Activity Details

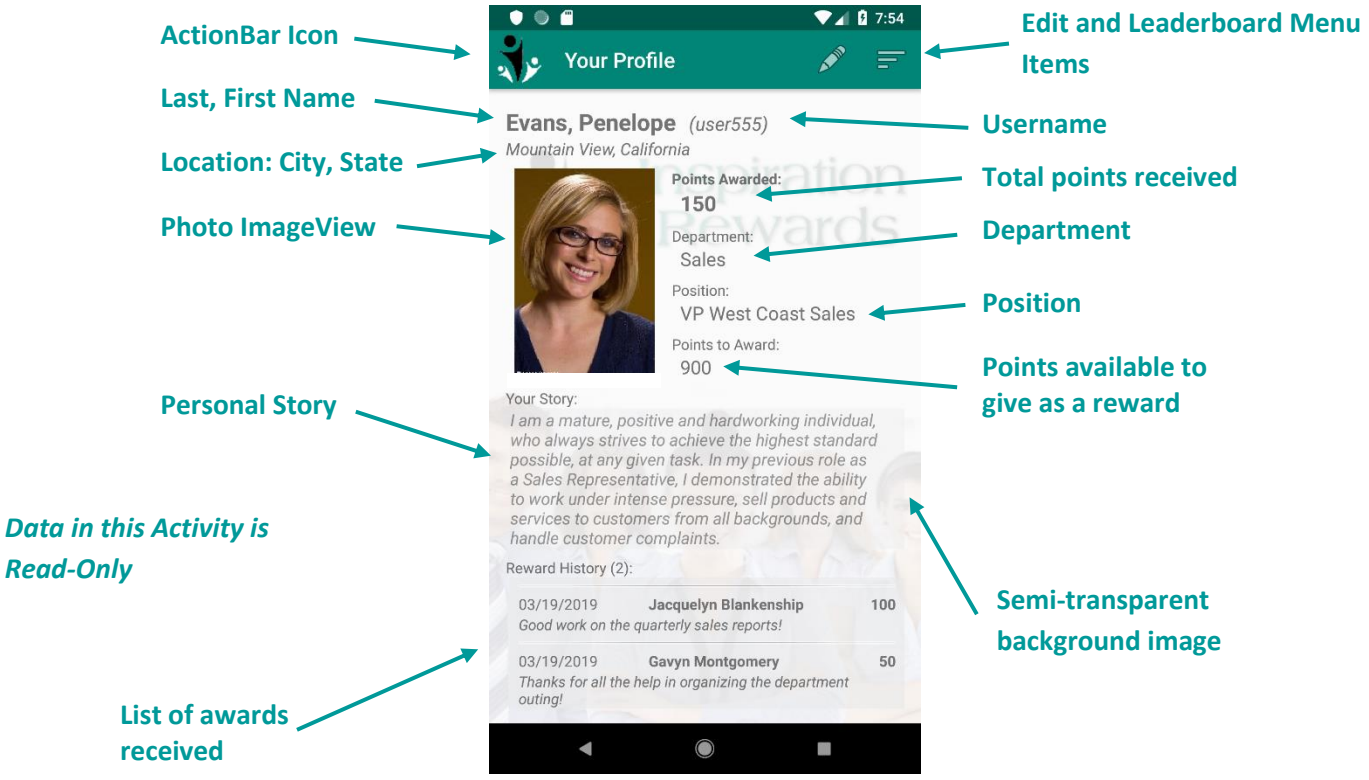
a. Login Activity



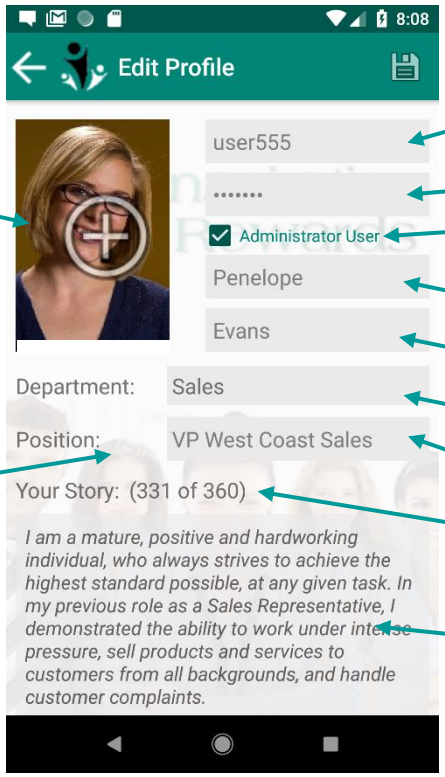
b. **Create Profile Activity**



c. **Profile Activity**



d. **Edit Profile Activity**



ActionBar Icon with Arrow

Save Profile Menu Item

Username field (not editable)

User photo ImageView

Password field

Make Admin user checkbox

First Name field

Last Name field

Department field

Position field

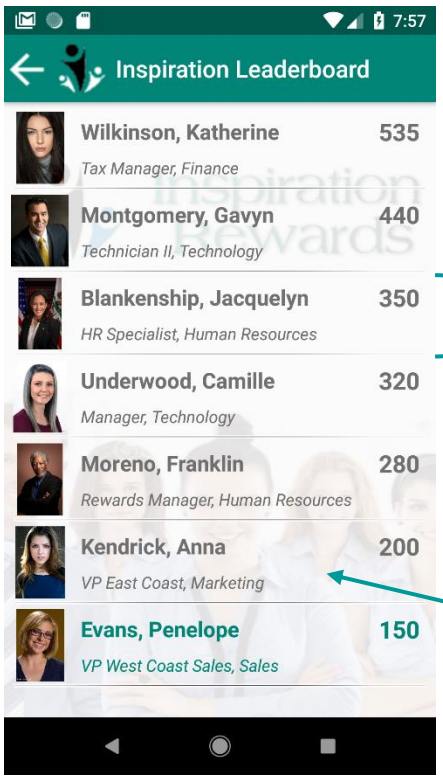
Semi-transparent background image

Available character count

Personal story field

All data in this Activity is can be changed except the Username

e. **Leaderboard Activity**



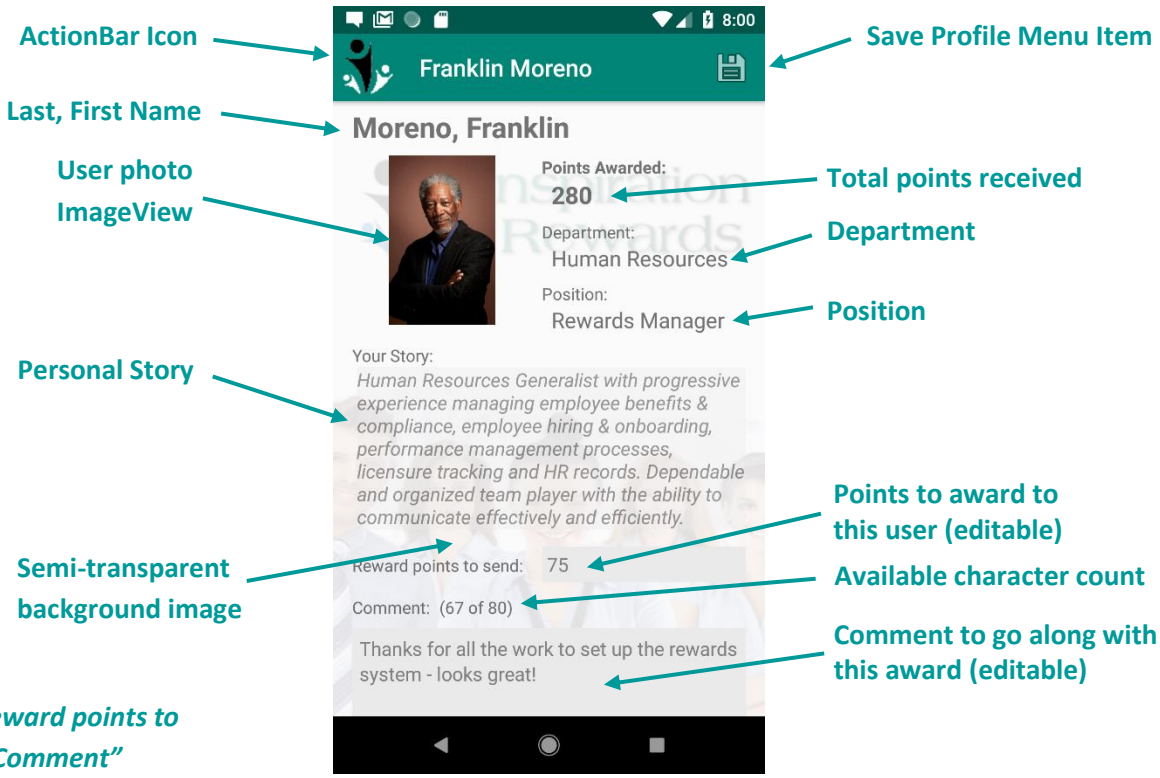
ActionBar Icon with Arrow

List of users, sorted by total awards points they have received

Each user records contains: Last, First Name Position, Department and Points

Semi-transparent background image

f. **Award Activity**



Only the "Reward points to send" and "Comment" fields are editable in this Activity.

E) Inspiration Rewards API

Data can be created, read, updated, etc. via the Inspiration Rewards API. The root endpoint for the Inspiration Rewards API is:

Base URL = http://inspirationrewardsapi-env.6mmagpm2pv.us-east-2.elasticbeanstalk.com

Note: The API calls detailed below require you to provide your student ID number as a part of the data the API required.

You MUST you your own student ID number!

The API:

1) **Create User Profile**:

Base URL + "/profiles"

Connection:

Request Method: POST
Request Property: "Content-Type": "application/json; charset=UTF-8"
Request Property: "Accept", "application/json"

JSON to Send (example):

```
{
        "studentId": "123456789",
        "username": "user888",
        "password": "pass888",
        "firstName": "Roman",
        "lastName": "Walters",
        "pointsToAward": 1000,
        "department": "Finance",
        "story": "Chartered Financial Auditor with 5+ years' experience,
                 seeking to leverage proven cost, revenue, and budget
                 maximization skills for Capital One. Saved HUDA Inc. $2.7
                 million by identifying low-margin projects. Improved pricing
                 scheme at MRI International. Grew customer retention 32%.",
        "position": "Sr. Auditor",
        "admin": false,
        "location": "Mountain View, California", ← From Location Services
        "imageBytes": "\/9j\/4AAQSkZJB……K/DCF\/\/2=\n", ← A very long String
        "rewardRecords": [] ← A empty JSONArray (no rewards yet!)
}
```

Returns (Profile as JSON):

HttpURLConnection.HTTP_OK:

```
{
        "studentId": "123456789",
        "firstName": "Roman",
        "lastName": "Walters",
        "username": "user888",
        "department": "Finance",
        "story": "Chartered Financial Auditor with 5+ years' experience,
                 seeking to leverage proven cost, revenue, and budget
                 maximization skills for Capital One. Saved HUDA Inc. $2.7
```

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```
                    million by identifying low-margin projects. Improved pricing
                    scheme at MRI International. Grew customer retention 32%.",
            "position": "Sr. Auditor",
            "password": "pass888",
            "oldPassword": null, ← This field is not used in this call/return
            "pointsToAward": 1000,
            "admin": false,
            "imageBytes": "\/9j\/4AAQSkZJB……K/DCF\/\/2=\n", ← A very long String
            "location": "Mountain View, California",
            "rewards": null  ← Since this is a new user, no rewards yet!
        }
```

Error: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection.HTTP_FORBIDDEN , etc)

```
{
        "errordetails": {
           "timestamp": "10-13-2019 06:27:43",
           "status": "BAD_REQUEST", ← This varies by error type, not needed
           "message": "Invalid input - a profile with this username already
                       exists.",  ← Use this field as a message to user
           "subErrors": []  ← Not used for this call/response
        }
}
```

2) **Login**:

Base URL + "/login"

Connection:

Request Method: POST
Request Property: "Content-Type": "application/json; charset=UTF-8"
Request Property: "Accept", "application/json"

JSON to Send:

```
{
        "studentId": Student ID Number,
        "username": User Name,
        "password": Password
}
```

Example:

```
{
        "studentId": "123456789",
        "username": "user555",
        "password": "pass555"
}
```

Returns (Profile as JSON):

HttpURLConnection.HTTP_OK:

```
{
   "studentId": "123456789",
   "firstName": "Olivia",
```

```
    "lastName": "Combs",
    "username": "user555",
    "department": "Legal",
    "story": "The subject of law fascinates me extensively. I am intrigued
              by developments in the law and the way that it adapts to an
              ever-changing society.",
    "position": "Contract Attorney ",
    "password": "pass555",
    "oldPassword": null, ← This field is not used in this call/return
    "pointsToAward": 1000,
    "admin": false,
    "imageBytes": "\/9j\/4AAQSkZJB……K/DCF\/\/2=\n", ← A very long String
    "location": "Chicago, Illinois",
    "rewards": [{ ← A JSONArray of JSONObjects
          "studentId": "123456789",
          "username": "user789",
          "name": "Kendrick, Anna",
          "date": "03/22/2017",
          "notes": "Great part of the team!",
          "value": 150
          }, {
          "studentId": "123456789",
          "username": "user789",
          "name": "Wilkinson, Katherine",
          "date": "01/11/2017",
          "notes": "Thanks for the late hours",
          "value": 100
          }]
}
```

Other: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection.HTTP_UNAUTHORIZED , etc)

```
{
   "errordetails": {
          "timestamp": "10-03-2019 06:38:25",
          "status": "UNAUTHORIZED", ← This can vary by error type
          "message": "Invalid username/password combination.", ← Use as a
          "subErrors": []  ← Not used for this call/response      message to user
   }
}
```

3) **Update User Profile**:

Base URL + "/profiles"

Connection:

Request Method: PUT

Request Property: "Content-Type": "application/json; charset=UTF-8"

Request Property: "Accept", "application/json"

JSON to Send: Profile as JSON

```
{
      "studentId": "123456789",
      "username": "user555",
      "password": "pass555",
      "firstName": "Penelope",
      "lastName": "Evans",
      "pointsToAward": 825,
      "department": "Sales",
      "story": "I am a mature, positive and hardworking individual, who
               always strives to achieve the highest standard possible, at
               any given task. In my previous role as a Sales
               Representative, I demonstrated the ability to work under
               intense pressure, sell products and services to customers
               from all backgrounds, and handle customer complaints.",
      "position": "VP West Coast Sales",
      "admin": true,
      "location": "Mountain View, California", ← From Location Services
      "imageBytes": "\/9j\/4AAQSkZJB……K/DCF\/\/2=\n", ← A very long String
      "rewardRecords": [{ ← A JSONArray of JSONObjects
            "name": "Jacquelyn Blankenship",
            "date": "03\/19\/2019",
            "notes": "Good work on the quarterly sales reports!",
            "value": 100
            }, {
            "name": "Gavyn Montgomery",
            "date": "03\/19\/2019",
            "notes": "Thanks for all the help in organizing the outing!",
            "value": 50
      }]
}
```

Returns:

HttpURLConnection.HTTP_OK:

```
Profile Updated Successfully ← This is text, not JSON
```

Other: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection.UNAUTHORIZED, etc)

```
{
  "errordetails": {
     "timestamp": "10-03-2019 06:38:25",
     "status": "UNAUTHORIZED",   ← This can vary by error type
     "message": "Invalid username/password combination.",   ← Use as a
     "subErrors": []   ← Not used for this call/response      message to user
  }
}
```

4) **Get All Profiles**:

Base URL + "/allprofiles"

Connection:

Request Method: POST
Request Property: "Content-Type": "application/json; charset=UTF-8"
Request Property: "Accept", "application/json"

JSON to Send:

```
{
    "studentId": Student ID Number,
    "username": User Name,
    "password": Password
}
```

Example:

```
{
    "studentId": "123456789",
    "username": "user555",
    "password": "pass555"
}
```

Returns:

HttpURLConnection.HTTP_OK:

```
[{ ← A JSONArray of JSONObjects
    "studentId": "123456789",
    "firstName": "Katherine",
    "lastName": "Wilkinson",
    "username": "user000",
    "department": "Finance",
    "story": "Chartered Financial Analyst with 5+ years' experience,
              seeking to leverage proven cost, revenue, and budget
              maximization skills for Capital One. Saved HUDA Inc. $2.7
              million by identifying low-margin projects. Improved pricing
              scheme at MRI International. Grew customer retention 32%.",
    "position": "Tax Manager",
    "password": null, ← Not used for this call/response
    "oldPassword": null, ← Not used for this call/response
    "pointsToAward": 160,
    "admin": false,
    "imageBytes": "\/9j\/4AAQSkZJB……K/DCF\/\/2=\n", ← A very long String
    "location": "Hollywood, CA 90210",
    "rewards": [{ ← A JSONArray of JSONObjects
        "studentId": "123456789",
        "username": "user000",
        "name": "Kendrick, Anna",
        "date": "03/22/2017",
        "notes": "Great part of the team!",
        "value": 150
        }, {
        "studentId": "123456789",
```

```
            "username": "user000",
            "name": "Kendrick, Anna",
            "date": "01/22/2017",
            "notes": "Good work!",
            "value": 75
        }]
    },
    {
        "studentId": "123456789",
        "firstName": "Penelope",
        "lastName": "Evans",
        "username": "user002",
        "department": "Sales",
        "story": "I am a mature, positive and hardworking individual, who
                  always strives to achieve the highest standard possible, at
                  any given task. In my previous role as a Sales
                  Representative, I demonstrated the ability to work under
                  intense pressure, sell products and services to customers
                  from all backgrounds, and handle customer complaints.",
        "position": "VP West Coast Sales",
        "password": null,   ← Not used for this call/response
        "oldPassword": null,   ← Not used for this call/response
        "pointsToAward": 1000,
        "admin": false,
        "imageBytes": "\/9j\/4AAQSkZJB……K/DCF\/\/2=\n",  ← A very long String
        "location": "Chicago, Illinois",
        "rewards": null   ← No rewards for this user
    },
    {
        … more user data …
    },
    {
        … more user data …
    }]
```

Other: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection. HTTP_FORBIDDEN , etc)

```
{
   "errordetails": {
      "timestamp": "10-03-2019 06:38:25",
      "status": "UNAUTHORIZED",   ← This can vary by error type
      "message": "Invalid username/password combination.",   ← Use as a
      "subErrors": []   ← Not used for this call/response      message to user
   }
}
```

5) **Add Rewards**:

Base URL + "/rewards"

Connection:

Request Method: POST
Request Property: "Content-Type": "application/json; charset=UTF-8"
Request Property: "Accept", "application/json"

JSON to Send:

```
{
      "target": {   ← This is the user who gets the award
            "studentId": "123456789",
            "username": "user456",
            "name": "Olivia Combs",
            "date": "03\/10\/2019",   ← Use current date
            "notes": "Thanks for the help!",
            "value": 100   ← Int reward value
      },
      "source": {   ← This is the user who gives the award
            "studentId": "123456789",
            "username": "user555",
            "password": "pass555"
      }
}
```

Returns:

HttpURLConnection.HTTP_OK:

```
Reward Added Successfully ← This is text, not JSON
```

Other: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection. HTTP_FORBIDDEN , etc)

```
{
    "errordetails": {
      "timestamp": "10-03-2019 06:38:25",
      "status": "UNAUTHORIZED",   ← This can vary by error type
      "message": "Invalid username/password combination.",   ← Use as a
      "subErrors": []   ← Not used for this call/response      message to user
    }
}
```

F) Additional Utility API Commands *(not required, but useful when testing)*

The below three API calls are *NOT* needed by the app, but might be useful for you when developing and testing your app. These 3 calls are 1) Reset all Rewards *(this will remove all rewards given to other users and reset all user's points-to-give totals).* 2) Delete User *(this will delete the specified user).* 3) Delete All Users *(this call deletes all users for the specified student id).*

1) Reset All Rewards

Base URL + "/resetprofiles"

Connection:
Request Method: POST
Request Property: "Content-Type": "application/json; charset=UTF-8"
Request Property: "Accept", "application/json"

JSON to Send:

```
{
      "studentId": Student ID Number,
      "username": User Name,  ← Any admin user ID
      "password": Password
}
```

Example:

```
{
      "studentId": "123456789",
      "username": "user555",
      "password": "pass555"
}
```

Returns:

HttpURLConnection.HTTP_OK:

```
Profiles Reset Successfully   ← This is text, not JSON
```

Other: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection. HTTP_FORBIDDEN , etc)

```
{
    "errordetails": {
      "timestamp": "20-03-2019 06:38:25",
      "status": "UNAUTHORIZED",    ← This can vary by error type
      "message": "Invalid username/password combination.",
      "subErrors": []   ← Not used for this call/response
    }
}
```

2) Delete User

Base URL + "/profiles"

Connection:
Request Method: DELETE
Request Property: "Content-Type": "application/json; charset=UTF-8"
Request Property: "Accept", "application/json"

JSON to Send:

```
{
      "admin": {
            "studentId": "123456789",
            "username": "user911",  ← Any admin user ID
            "password": "pass911"
      },
      "username": "user888"  ← The user to delete
}
```

Returns:

HttpURLConnection.HTTP_OK:

```
Profile Deleted Successfully   ← This is text, not JSON
```

Other: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection. HTTP_FORBIDDEN , etc)

```
{
    "errordetails": {
      "timestamp": "20-03-2019 06:38:25",
      "status": "UNAUTHORIZED",   ← This can vary by error type
      "message": "Invalid username/password combination.",
      "subErrors": []   ← Not used for this call/response
    }
}
```

3) Delete All Users

Base URL + "/allprofiles"

Connection:
Request Method: DELETE
Request Property: "Content-Type": "application/json; charset=UTF-8"
Request Property: "Accept", "application/json"

JSON to Send:

```
{
      "studentId": "123456789",
      "username": "user911",  ← Any admin user ID
      "password": "pass911"
}
```

Returns:

HttpURLConnection.HTTP_OK:

```
Profiles Deleted Successfully   ← This is text, not JSON
```

Other: (i.e., HttpURLConnection.HTTP_BAD_REQUEST, HttpURLConnection. HTTP_FORBIDDEN , etc)

```
{
    "errordetails": {
      "timestamp": "20-03-2019 06:38:25",
      "status": "UNAUTHORIZED",    ← This can vary by error type
      "message": "Invalid username/password combination.",
      "subErrors": []   ← Not used for this call/response
    }
}
```

G. Provided Images

The following image assets are provided for you to use with this project:

arrow_with_logo.png

background.png

default_photo.png

icon.png

login_people.jpg

logo.png *(also used as launcher icon)*

name_image.png

separator.png

H. Menu Icons

For the required menu icons, you can use the build-in android menu icons:

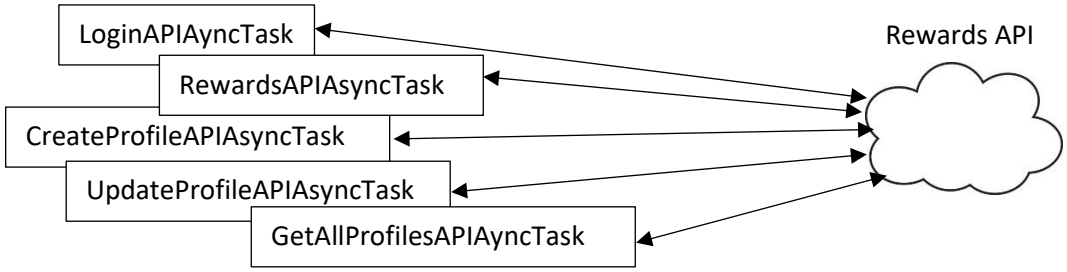
ic_menu_edit

ic_menu_save

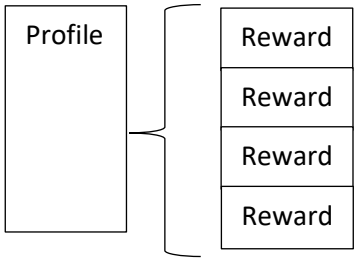
ic_menu_sort_by_size

I. Other Classes

- You will need AsyncTasks to execute the API calls described earlier and to receive their returned data.



- You will need to create a class to represent the user profiles
- You will need to create a class to represent the rewards a user receives.



Assignment Assistance

The TAs for our course is available to assist you with your assignment if needed. Questions on assignment requirements and course concepts can be sent to the instructor.

Submissions & Grading

1) Submissions must consist of your zipped project folder *(please execute Build =>Clean Project before generating the zip file*).
2) Submissions should reflect the concepts and practices we cover in class, and the requirements specified in this document.
3) Grading will be based upon the presence and proper functionality of all features and behaviors described in this document.

NOTE

This assignment is worth 400 points. This means (for example) that if you get 89% on this assignment, your recorded score will be:

(89% * 400 points = 356 points)

If you do not understand anything in this handout, please ask.

Otherwise the assumption is that you understand the content.

Unsure? Ask!

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