Ira A. Fulton Schools of Engineering
Arizona State University
Engineering | School of Computing, Informatics, and Decision Systems Engineering

CSE 535: Mobile Computing

Health Monitoring UI
Assignment 1

Purpose:

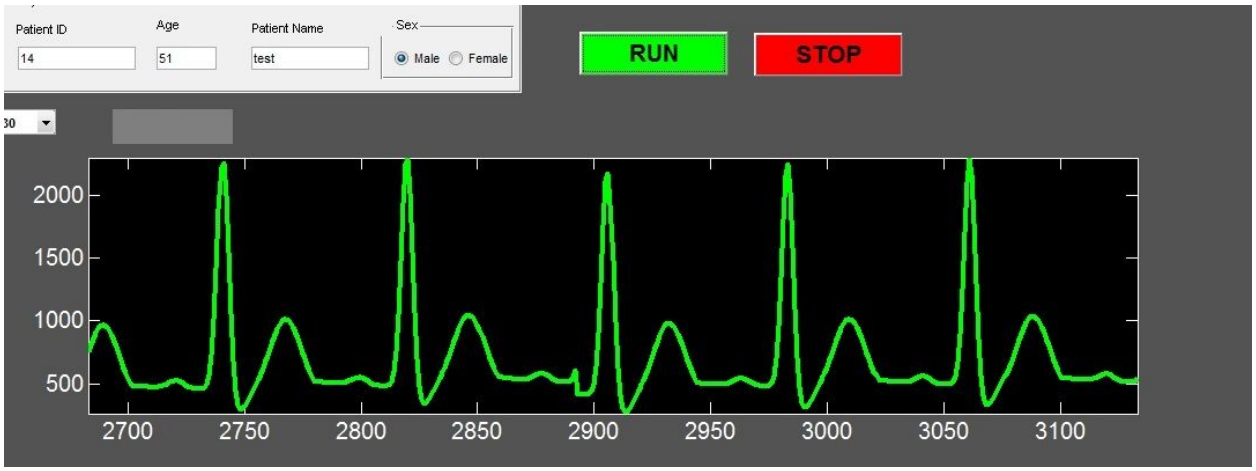

Figure 1: MATLAB UI for Android Phones

Develop a UI similar to the MATLAB UI shown in Figure 1: MATLAB UI for Android Phones. Use Android Studio to display the UI if you do not have an Android smartphone. For graphing, use the provided GraphView class.

Technology Requirements:

- Android Studio
- Either MatLab or Python

Project Description:

First, generate a sample array of floats using the random library. Whenever the RUN button is clicked, the array is plotted into the canvas. On clicking the STOP button, drawing on the graph

should stop and the view should be cleared. If you click the RUN button again, drawing on the graph should restart continuously without clearing the previous graph.

In addition, the graph should have been drawn and moved (updated without cleaning the whole graph) continuously before the STOP button was clicked. In other words, you should design and simulate the graph of a real heart rate monitor (HRM) used in hospitals.

Demo Video

There are two parts required for the demo video submission: (1) the application demonstration and (2) the source code description. Submit only **one (1)** video link – both parts should be included in one video.

1. Application demonstration (maximum 2 minutes in length)
    a. Begin recording from when you start the application. Show all of the required functions including the exception handling, such as clicking the RUN button multiple times.
2. Source description (maximum 5 minutes in length)
    a. Show the overall UI.
    b. Describe each UI component functionality by showing your java source code (not XML). Explain how it works based on the source code. Then describe the reason why you chose the functionality (i.e. it takes less time and space complexity compared to another method, or it is a unique way to avoid some specific cases, etc.).

Submission:

- Individual submission
- Please upload (1) **the zipped source code folder** from your Android Studio workspace and (2) **the readme.txt file**.
    - In the **readme.txt file**, you should include the demo video link (YouTube) and your name.
    - In the source code of your app, acknowledge any reused code and mark what is your own code. **These comments are required.**
- Before submitting your assignment, please double-check whether the **"app-debug.apk**" file is within the project folders as follows: **app > build > output > apk**. If the file is not within the project folders, please build your project at least one time before zipping. After

building your project, you will be able to see the apk file. Do not change anything for the **“app-debug.apk”** file (e.g. do not change the name of the file).

- All of the source code files should be attached to the specific comments acknowledging any reused code and your own code.
- **The application and Android Studio project name should be your first initial and last name.**
    - E.g. Alice Jones would be “**AJones**” for the application and project name.
- To submit the demo video link, you should create a YouTube account and upload the required video for the assignment to that account.

Grading Rubric:

Testing Environment for Grading

If possible, please use one of the environment settings listed below to avoid receiving the wrong grade. Occasionally, a source code will not work correctly when the development environment is different from the listed environments. If this occurs, we are not able to give you the correct grade because it is not easy to find the reason why your application failed.

- Pixel 8
- API 29

This assignment is worth a total of 100 points. The “Grade Deductions” column represents the number of points that will be deducted based on the condition in the “Condition” column.

Condition	**Grade Deductions**
• The app runs without being unresponsive • The app can fill patient data • The graph updates continuously after clicking RUN button one (1) time • The graph clears on hitting the STOP button	**0**
The app is unresponsive at any stage	**50**

The graph does not show	**50**
The app cannot fill patient data	**30**
Unable to hit the RUN button multiple times	**30**
Unable to hit the STOP button multiple times	**30**
The graph has the correct layout but no data	**40**
The graph contains data but it does not update	**25**
The graph is missing axis labels	**20**
Student did not follow the submission method	**70**