**CSE 3310 – Fundamentals of Software Engineering**

**Fall 2021 – Term Project**

**Term Project Objective:**

Practice general Software Engineering life cycles of Specification, Design, Implementation and Testing via programming an Android application. This class will be utilizing a Plan-driven Software Engineering approach and not an agile methodology.

**Project Requirements:**

* Please pick one of the following Android projects (in the next pages) as your term project. We will use Project I as the default project for the class to practice Software Engineering practices. Your software should be an android application that runs on the Google Android platform. This means, with your instructions, we (i.e. class GTA and Khalili) should be able to run your code on the standard Android emulator that we have installed on our machines. We will provide some basic training android down the road.
* You may select any development tool or environment however you must develop the project yourself. It is not enough to just copy and paste a project from somewhere else. This does not mean you cannot reuse any existing code. Many software engineering products build on some existing code. But it is important that you clearly document which parts are yours and which parts you reuse from another source. If in doubt, please run it by me and GTA first!
* You must provide the necessary software required to run/test your application.
* Project will be completed in teams; no individual work is accepted. All team members are expected to put equal time in handling the allocated tasks. In case of any friction or miscommunication, please inform me and GTA immediately. We will conduct a peer-review later in the semester to evaluate all team members’ equal participation.
* No copyright violations for any part of “reused” code, if any.
* Provide appropriate references when using other people’s work.
* All team members **must** take part in presenting a portion of your project. Presentation times are specified in the class schedule.
* The class GTA’s primary responsibility is helping you with your project. You can visit him during his office hours or via TEAMS meeting. All contact information is available in the class syllabus.

**Required Progress & delivery:** Your project will be delivered in 4 increments as listed below:

* 1. UML diagrams: Due 9/30/21 in class (hardcopy, one per team)
  2. SRA document (UML + detailed requirements): Due 10/28/21, one per team; Submit hardcopy of SRA in class. (note: Design and implementation should begin right after the midterm, there will an android training right after midterm)
  3. Test Plan Doc. (hardcopy, one per team Due 11/18/2021 in class) + Peer reviews (Individual, hardcopy Due 11/16 or 11/18 in class depending on your group date that you are present in class).
  4. Final product demo and course binder: Due 12/7/2021 (Final product: i.e. Project demo, source code, test plan and external documentation also referred to as user manual. Details of what to hand in will be provided in class later). Team presentations will take place during the last two weeks of the class. All students must present a portion of their project (i.e. UML, Requirements, and Test plan and project demo). Refer to class schedule for presentation schedule and details.

**Assumptions:**

* All users are over the age of 18 and a current UTA student
* Application initially free, advertisers pay for add space
* You could charge the restaurants a small percentage (e.g. 10%) for ordered deliver via your app
* Ignore any legal or tax issue unless you decide to make profit from your project
* Ignore Post project maintenance issues

**General comments:**

* All team members must participate equally in all stages of the project. A peer review will be conducted to validate equal participation.
* All members must participate in presenting a segment of their project. To pass the project portion of the course, you must present a portion of your project (5 to 10 min)
* Establish a weekly meeting with your team members, a one-hour session is sufficient at the start. Make sure all members can attend and are committed to this (online/virtual meeting is okay, stay safe).
* Select a facilitator for each of the 4 increments. Typical duties of a facilitator are: organizing meetings, coordinating efforts among team members, communicate with the course instructor or the class GTAs, etc. You must rotate the facilitator role per each increment of delivery, there are four of you and 4 increments.
* Bonus: 5 points for the best class project, 3 points for the second best project

**Project 1: University Food System (UFS)**

Develop an android application to help university students order food and provide information about on-campus and near-campus restaurants and food providers (e.g. restaurant review and comments). The system should have an appealing home screen and minimally include the following functionality (you may modify or add additional functionality after receiving approval from your client):

* Registration: Students must register before they can use the system. University ID can be used as member Id.
* Login: Members must login to use the system after initial registration.
* Payments: System should be able to handle payments (Meal plan and Credit cards only; You do not need to validate credit cards for this project, just make them 16 digits long, have an expiration date, and a 3-digit security code)
* Restaurants: System should allow vendors to add their restaurants and their menu (e.g. subway, Panda express, connection café and other on campus restaurants).
* Orders: Place food order (e.g. Sandwich and coke with chips etc.). System should also allow for modifying your order after the initial placement within 5 minutes of your initial order time (i.e. cancel an order to modify existing order by adding new items).
* Communication: System should allow for sending text messages/e-mails to a single, subgroup or all members (e.g. Your order has been placed, your order is on its way etc.)
* Delivery: System should allow students to track their order and get their food delivered or select an option for pick up.
* Favorites list: Allow creating a favorite list of restaurants (you must have ordered at least once from a restaurant before you can add it to your favorite’s list)
* Search: You should be able to search for different food items or restaurants
* Review and Rating: Use Stars (one to five stars) to rate the service received, and allow to enter for a short comment to help future users
* Advertisements: System should provide advertising space (e.g. Local subway store offers specials or coupons to members). This could be a source of revenue from the app.
* {**for Honors Credit only**}
  + Create a map displaying your location and the resultants.
  + Include an accurate time estimation of the project. Prepare a 6-page report (single-space, font 11 or 12) using “Softstar Systems – COCOMO estimation” at: <http://www.softstarsystems.com/demo.htm>

**Project 2: Your choice!**

Develop an android application of your choice assuming:

1. It is user and family friendly (i.e. no foul language, no violence, unacceptable pictures or comments, or generally questionable contents). This is particularly applicable if you decide to develop a game. If unclear, please run it by me and GTA first.
2. You have until the beginning of the next lecture to inform me if you are planning to use a different project than the project listed above. To propose a new project, please:
   * Prepare a short description of your project and the intended functionality similar to the project description above (1-page max)
   * All of your team members must agree to take part in this project
   * This product cannot be part of your day-to-day work or used for other classes without careful consideration of all relevant details.
   * You need my exclusive agreement before you can pick it as the term project. E-mail it to me and copy our GTA on or before the start of the next lecture.
3. It is highly preferred if you develop a game (it is preferred not required).
4. After reviewing your proposed project, we will inform you if you can proceed with that project or not. We generally watch for the following items in an application:
   * Good graphics (i.e. avoid simple tables or non-graphic games)
   * Good AI, if it is a game (e.g. game smarts and playing approach/strategy)
   * You cannot propose an application that the exact one already exists as a web or Mobile application

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**Android: Resources and references you might find helpful:** All Android related questions should be sent to the class GTA first. It is not required to know android up front however if you want to have a head start, the links below, in the order listed, can be of great help.

Getting started with Android Programming: <https://developer.android.com/guide>

Android Development Tutorial: [http://www.vogella.com/articles/Android/article.html](https://owa.uta.edu/owa/khalili@exchange.uta.edu/redir.aspx?C=C8fxhHVKgku4BTPh902LJWQAlpqDfdBIok2DXEA_2SaPvQRj-iTSBbdDU9oXW-nbu9CJK5QLMDo.&URL=http%3a%2f%2fwww.vogella.com%2farticles%2fAndroid%2farticle.html)

Android Studio Download: <https://developer.android.com/studio>