

COMPSCI 280: Introduction to Software Development

Project Assignment Overview

Introduction

This assignment serves to reinforce skills in software development. You will be developing a system in Python using the skills you are learning in this course. This assignment will use the Python skills you have learnt in COMPSCI 105, 107, or 130. As we are not teaching Python in this course, you will need to review what you have learnt in your previous courses.

In completing the assignment, you will program a part of a larger system, as described in the Background section. The end goal of your part is a small Graphical User Interface (GUI) application for data entry. As part of the assignment you will be developing unit tests, a database and a GUI.

As you are not developing the application from scratch, there is source code available on Canvas.

You will probably have lots of questions when looking through the source code, as there will be references to concepts and modules that you have not seen before along with use of development techniques yet to be covered. For this assignment, however, you are essentially constrained to completing the items in the product backlog. As the course progresses, you will learn about the other aspects.

Background

Every year, thousands of people go hiking in New Zealand. While we have some of the most beautiful scenery in the world, there are also many dangers in our wilderness. These dangers result in hundreds of search and rescue operations every year, and thousands of hours lost as rescuers search for missing people. Additionally, there is an increasing number of incidents every year, as the number of walkers increases.

To counter this, the government has organised a new department to build and operate a robotic drone search and rescue service (DRS-RES). This service will allow people to remotely control drones that can survey large areas of the wilderness, provide communications between various search parties (both drone and human) and support rescue operations.

The DRS-RES system is already under development and has even been trialled in some local search and rescue efforts here in Auckland. As the problem is very complex, the complete system contains several sub-systems that perform more specialised roles.

You have been hired as a software developer to help program one of the sub-systems. You will be working on the drone allocation and localisation system (DALSys). DALSys is responsible for storing information on the drones and drone operators, including configuration details, who is controlling which drones and where the drones are located.

Assessment criteria

You will need to develop your software over three iterations. Each iteration will have a specific goal to achieve, with a product backlog.

To get full marks for the assignment, you will need to complete a set of product backlog items. Each backlog item has a “Done” criteria. If all the “done” criteria is completed you will get the

mark for that item. If the criteria is not met, then you will not get the mark. The product backlog will be included in the specification of each iteration.

Submission

You will need to submit all your work for each iteration to Assignment Dropbox (ADB — <https://adb.auckland.ac.nz/>). Your work for each iteration must be submitted by 11:59pm on the following days:

Iteration	Date
#1	9 th August 2019
#2	20 th September 2019
#3	18 th October 2019

All the files for your assignment must be added to a ZIP file and submitted online. For iterations involving Python code, you will need to submit all the files, including the files provided on Canvas and the files you have written. All code files must be submitted as text files, other files can be either Microsoft Word documents or PDF files.

Software Needed

Python: For this assignment, you will be provided the code written in Python 3.7. Python can be downloaded from <https://www.python.org/download/releases/3.7/>.

MySQL: You will be sent an email during Week 3 about access to a MySQL database on the university servers. If you want to install MySQL yourself, you can use any version of MySQL Server. A community version of MySQL can be downloaded from <https://dev.mysql.com/downloads/mysql/>.