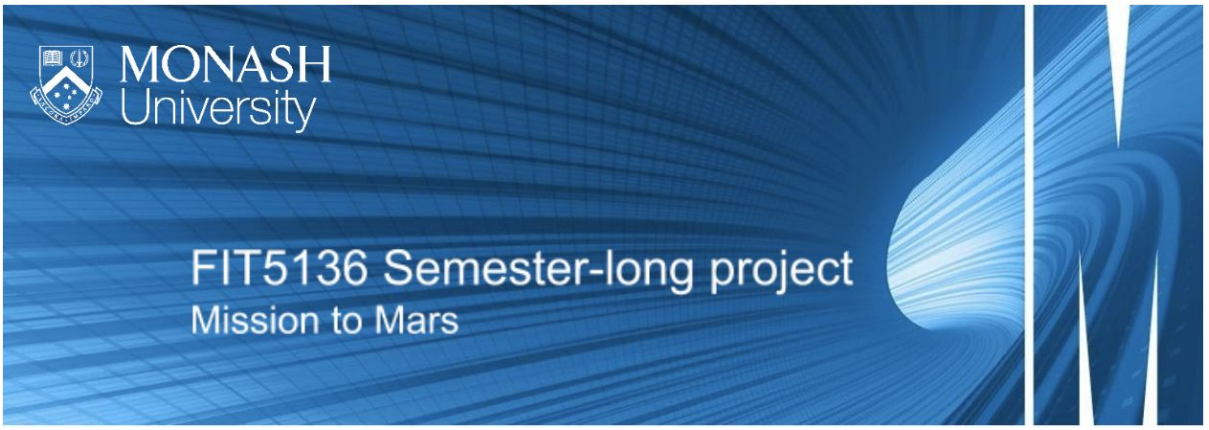

Initiate Second Chance Cooperation (ISCC) is responsible for collaborating with the government of many countries to run space exploration missions. Life on Earth has become challenging and harder to survive with nature at rebellion and resources depleting. ISCC has acquired you to develop a module for a large and complex software system; a module Employ Fast that selects candidates for a mission. The space exploration mission originates from a country but can take candidates from other countries. Just like you, ISCC has acquired other organisations to develop modules related to cargo loading, fuel optimisation, mission control, among others. You need to develop the 'Employ Fast' module of the system.

There will be twelve space shuttles that will leave for Mars. Based on the mission, the shuttle might land at the same location as the previous shuttle or land at a new location. Initially, four space shuttles will depart on the same date and land at the same location on Mars. These four shuttles' missions will primarily range from infrastructure to agriculture. The modules must be ready and tested before being finally put to use.

A prototype of Employ Fast will be required to be presented and approved by ISCC. The ISCC representative will be your lecturer or the mentor to whom you should liaise for any requirements related enquiries. Once you have finished the development, you will demonstrate your module to the ISCC representative (your mentor). ISCC will take over the production from that point.

Table of Contents

Informal Client Requirements

Feature 1: Creating a mission

The Mission Coordinator will create a mission to start the process of planning the mission. The mission should have the following information:

1. Mission name
2. Mission description
3. Country of origin
4. Countries allowed
5. Coordinator's name and contact information
6. Job(s)
    a. Job name
    b. Job description
7. Employment requirements
    a. Title(s), ***for example***, civil engineers, builders
    b. The number of employees required for each job, ***for example***, five civil engineers and four builders
8. Cargo requirements
    a. For the journey
    b. For the mission
    c. For other missions
9. Launch date
10. Location (coordinates or address) of the destination
11. Duration of the mission
12. Status of the mission
    a. Planning phase (selected by default)

    b. Departed Earth
    c. Landed on Mars
    d. Mission in progress
    e. Returned to Earth
    f. Mission completed

The administrator and Mission Coordinator should be able to edit this information if needed.

Feature 2: Selecting a space shuttle

The administrator will select a shuttle to start the planning of the mission. Each shuttle has its minimum required properties as follows:

1. Name
2. Manufacturing year
3. Fuel capacity
4. Payload capacity
    a. Passenger capacity
    b. Cargo capacity
5. Travel speed, and so on.

Shuttle information is read-only.

Module: “Employ Fast”

Feature 3: Creating selection criteria

Once a shuttle is selected, the administrator should be able to view its properties and acquire the mission’s employment requirements. Based on the employment requirements, the administrator will have to create specific criteria for this module to follow when selecting candidates.

For example, let’s say, the mission is to build schools, parks and hospitals. Based on the employment requirements’ titles, the candidate should have experience either as a civil engineer, designer, manufacturer, builder, electrician, carpenter and painter. The criteria could be candidates should be between the age of 28 - 45 (any gender), with experience of at least seven years in at least one of these titles.

Some of the information should be derived from the mission’s description and employment requirements, and the rest administrator should be able to create following the “Mission to Mars” policies.
Criteria can include a combination of:

1. A range of age
2. Qualifications
3. Years of work experience
4. Occupations
5. Health records
6. Criminal records
7. Computer skills

8. Languages spoken.

As a software engineer, you need to provide the administrator with a way to add(or remove) these criteria and its subcriteria.

For example, for qualification(s), a candidate can have an undergraduate, a postgraduate and a doctorate. For any mission, certain criteria are mandatory to be checked, such as health and criminal records and that all the candidates can speak at least one language.

Feature 4: Finding N best candidates

Once the criteria are entered, the administrator should be able to ask the system to find the first N number of best candidates for a title. N is the number of candidates required for each job of the mission. Once the list is displayed, the administrator should add the candidates to the mission.

Feature 5: Selecting candidates

If a candidate is selected for a mission, the system needs to inform the candidate about their selection. The candidate can accept or reject the selection. If a candidate rejects, the administrator will have to find a replacement.

The recruitment process for this mission is complete when all the candidates have accepted to go to the mission. The administrator should inform the Mission Coordinator about the recruitment being finalised.

Feature 6: Registering as candidates

The candidates will register themselves to express their interest. When the administrator performs feature 3, you can assume the candidates that are

made available in the module have been interviewed. The candidate will be asked to enter the following information:

1. Name
2. Date of birth
3. Address
4. Nationality
5. Identification number (equivalent to TFN/ABN)
6. Gender
7. Allergies
8. Food preferences
9. Qualification(s)
10. Work experience
11. Occupation(s)
12. Computer skills
13. Language(s) spoken.

Once the candidate has created their profile, the system will request a third-party to get the candidate's criminal and health records. A candidate should be able to edit their profile. However, information such as criminal and health records are received from third-party so will not be allowed to modify.

You can have a look at the raw data of the mission, shuttles and candidates in the missionToMars.xlsx file available under the Assessments tab.

Technical Requirements

You have three options to choose from:

Option 1: Web-based application

1. **Programming Language**

   Primary Language:

   - Java (J2EE)
   - Python (Advanced)

   Secondary Languages:

   - HTML + CSS (Bootstrap or Material Design Lite)
   - JavaScript and use of following frameworks and libraries are accepted:
     - Angular
     - React
     - Node
     - Aurelia
     - Backbone
     - jQuery

2. **IDE requirements**

   Java

   - IntelliJ (recommended)
   - NetBeans
   - Eclipse

   Python

   - PyCharm

- Anaconda (accepted for initial learning/production; final delivery must be done using PyCharm).

3. **Database**

   After the handover, ISCC will implement its own database. Meanwhile, you can store data into any of the following files:

   - CSV file
   - Text file
   - Excel file

Option 2: Desktop-based application

1. **Programming Language**

   You can use any external libraries, extensions, etc

   - Java
   - Python

2. **IDE requirements**

   Java

   - IntelliJ (recommended)
   - NetBeans
   - Eclipse

   Python

   - PyCharm
   - Anaconda (accepted for initial learning/production; final delivery must be done using PyCharm)

3. **Database**

   After the handover, ISCC will implement its own database. Meanwhile, you can store data into any of the following files:

   - CSV file
   - Text file
   - Excel file

Option 3: Text-based application

1. **Programming Language**
    - Java (Core Java)
    - Python (Basic)
2. **IDE requirements**

    Java
    - IntelliJ (recommended)
    - NetBeans
    - Eclipse
    - BlueJ (not encouraged)

    Python
    - PyCharm
    - Anaconda (accepted for initial learning/production; final delivery must be done using PyCharm)
3. **Database**

    After the handover, ISCC will implement its own database. Meanwhile, you can store data into any of the following files:
    - CSV file
    - Text file
    - Excel file