AAE2251 / MEC2234 Software Engineering
Trimester 2, AY 2022/23
Programming Assignment (25%)

1. **Introduction**

   This assignment is made up of two components – an individual code challenge and a team project.

2. **Individual Code Challenge (8%)**

   Each team member is required to complete the following tasks:

   a. Complete the HackerRank Python (Basic) Skills Certification Test.
   (https://www.hackerrank.com/skills-verification/python_basic)

   b. Complete four HackerRank Python Challenge. The stipulated challenges will be revealed during Week 6's lesson.
   (https://www.hackerrank.com/domains/python)

3. **Team Project (17%)**

   The team project is made up of a word search generator and a word search solver.

   The word search generator shall read a text file consisting of a number of words and place them into the puzzle grid. The puzzle grid shall be at least 10 x 10 letters and can be configured. The puzzle grid can be either square or rectangular. The words shall be evenly placed in different orientation - vertically, horizontally, or diagonally - and may be in reverse order.

   The word search solver shall read the puzzle grid data produced by the word search generator and attempt to find all the words in the quickest time. The solution must be displayed on screen as well as written to a text file.

   At least x number of test cases shall be submitted, where x equals to the number of team members. The test cases shall cover a wide range of possibilities that comprehensively and convincingly test the product.

   The team project is graded in accordance with code quality and efficiency as well as usability and accuracy. Marks are awarded for extending the above basic requirements and produce a refined, user-friendly, and bug-free product.

4. **Submission**

   The assignment is due on **EOD Friday 17 February 2023** via xSiTe. Only one submission is required per team. Each team is required to submit the following:

   a. A document containing screenshots of every member's HackerRank Python (Basic) Skills Certificate and HackerRank Python Challenge Submission page. Screenshot that does not clearly show the team member's **registered name** will not be graded.

    b. At least two .ipynb files for the word search generator and word search solver respectively. Submission must be accompanied by data files, configuration files and test cases data files, where applicable. In another word, the Python files must run "out-of-the-box". Zip these files for submission.

    c. A readme file that provides an overview of the product and its key features as well as instructions on how to use it.

5. Grading Rubrics

The assignment makes up 25% of the module grade, and distributed across the following components:

    a. Individual Code Challenge (8%)

        i. HackerRank Python (Basic) Skills Certification Test (8%)

        ii. Four HackerRank Python Challenge (4%)

    b. Team Project (17%)

        i. Good quality and bug-free Word Search Generator (4%)

        ii. Good quality and bug-free Word Search Solver (4%)

        iii. Well-designed and comprehensive Test Cases (4%)

        iv. Informative Readme file (1%)

        v. Additional features beyond the basic requirements (4%)

Important: Team member who does not contribute to the Team Project without valid reasons may be awarded zero marks.