DT211C/1 Team Computing Project CA

The challenge is to start from point (Start), move through the grid and map it, correctly marking black and white squares. You must output this map to a file – which will be checked for accuracy – correctly identifying:

- start position
- number of rows and columns
- number of white/black squares
- total number of squares on the grid

The robot then needs to return to the start position. An object will be placed on one of the squares on the grid and the robot then needs to determine and write to a second file:

- The position of the object on the grid (the Cell number or the Row/Column)
- Whether the object is on a black or white square

The project will be marked via a demo in the last lab in Week 13. However, there is a deadline for a design document due in Week 9.

Marking Scheme:

Design Document:

1. 5% for a project design document (due before Week 9 lab) outlining:
    a. A description of your program (about half a page of text that explains how your robot will achieve the project brief)
    b. A flowchart describing the logic you will program for the robot behaviour
    c. Your project task plan for what you will achieve in each weekly lab (1-2 pages in total)
    d. The robot build you plan to use (a few lines)

Final Demo:

2. 10%
    a. Traversing the grid, not going outside the edges of the grid, and returning to the start position.
3. 15%
    a. Output this map to a file (to be submitted with your document) – correctly identifying:
        i. start position
        ii. number of rows and columns
        iii. number of white/black squares
        iv. total number of squares on the grid
4. 5%
    a. Scan the grid and write to a second file (to be submitted with your document):
        i. The position of the object on the grid
        ii. The colour of the cell occupied by the object
5. 10%
    a. Speed (This will be a relative score, fastest gets 10, slowest gets 0).
6. 5%
    a. **Only upon completion of steps 2-5**, propose and implement a further modification to the code with the current build to enhance your project.
7. 20%
    a. Quality and readability of the code:
        i. Design/ functions
        ii. Commenting
        iii. Use of parameters & Variables

iv. Good Structure

8. 5%
    a. Lego Robot Design (quality of the build), kit maintenance and preservation at project conclusion.
9. 5%
    a. Project management demonstrated in journal entries for each week. Each entry should set out what you want to achieve in each lab session, so there should be at least 4. You must identify what you want to achieve each week, how the tasks are divided among team members and how the weekly tasks will combine to achieve the project objective. We also want to see evidence of utilization of revision control for the project code – to be demonstrated in class to tutors, and logbook
10. 10% for document explaining the following:
    a. Strategy Used
    b. How the work was divided among the team
    c. Lessons learned during the project
    d. Test plan to prepare the robot
    e. Printout of code
11. 10%
    a. Demonstrating unusual ingenuity or flair in coding the project.

NOTE: At the end of the project, you will be asked to complete a **peer review form**, where you document your contribution to the project on a weekly basis, as well as highlighting your best contributions. The marks outlined above will be awarded to each team member **based on their individual contribution**.

Sample Layout for Grid: