Week 7 – Functions

- Functions/Subroutines
  - Write it once, use it as many times as you want.

Subroutines

- When you produced your routines for a ‘robot’ to go around the corridor, some of the actions needed to be repeated such as:
  - Turn right
  - Forward N number of steps

- It might have been useful to create routines within the overall routine to do these.

- We can and these are subroutines.
- We can use flowcharts to represent them.
- We can use a predefine process block to represent where a ‘call’ to a subroutine is.
- We can then do a flowchart for the subroutine

Subroutine – forward N

- We can use flowcharts to represent them.
Problem 7.1:
- Produce a flowchart for a menu system it should:
  - Present the user with a menu
  - Takes in a user inputted numerical value for options in a menu;
  - Options are:
    - To calculate the area of the floor of a rectangular room
    - To calculate the area of circle
  - Each option should lead to a subroutine to perform that action.

Problem 7.2
- Produce a test plan for problem 7.1

Problem 7.3
- Produce a line following robot.
- The robot is configured with two light detectors facing the floor.
- The light levels detected:
  - On the line are less than 40
  - Off the line greater than 45
- Each detector has to be dealt with individually.

Task
- Draw a flowchart of your design.
- Test your design on paper/screen/moving the robot by hand.
- Program the robot based on your design.
- It is expected that we will carry on with this next week. It is also expected that you might have to do this more than once.