Design

# Introduction

Plan the main algorithms for your project in [pseudocode, structured English or as flowcharts](https://hrsfc.sharepoint.com/Sites/CompSci-Stu/Introduction%20to%20C/Create%20your%20pseudocode%20or%20flowchart%20for%20your%20program%20below:). Give each algorithm a clear subheading that links to a specific objective or set of objectives from your **success criteria** document.

* Menu()
  + Subroutine will give the user four options to interact with the game. Create a new game, resume a previous game, show the instructions for the game, or quit the session.
* PlayNewGame()
  + Generate a new game session
    - SetGrids() – Sets 8x8 player, computer and target tracker grids to empty. Calls functions to allow player to deploy fleet and automates computer deployment.
    - PlayGame() – Initiates turns to begin gameplay, using a variable to record turns.
* SetComputerGrid()
  + Randonly generate the 5 coordinates and store in the computer BattleGrid
* DrawGrid()
  + Function draws all necessary grids by iterating through each value and printing in a table format.
* ComputerTurn()
  + Initiates the computers turn, generating random coordinates to attack
* PlayerTurn()
  + Allows the player to decide on a set of coordinates to attack, handling possible errors
* CheckHitOrMiss()
  + Functions that accepts and X and Y ordinate, identifies whether a ship was present at the location or not, also handling repeat attacks and out of array attacks.
* SaveFile()
  + Saves all necessary data into a text file, exactly saving game state after every turn.
* ReadAndLoadFile()
  + Opens the file with read access, and extracts contents, loading into appropriate arrays and variables.
* ResumeFromSave()
  + Continues game after loading game data, calling necessary functions
* ShowInstructions()
  + Prints the game’s objectives into the console for the user