# Mini-project spec- Dec 2024

## Min project scope

Create 3 separate utilities that will run in 3 separate files.

### Utility 1 – football match analysis application

Application which will track data and stats from a football match

#### General functional spec:

* GUI will contain several buttons, for example some of the below:
  + 1s half start time
  + 1st half end time
  + 2nd half start time
  + 2nd End time
  + Goals
  + Shots on target
  + Shots wide
  + Free kicks
  + Corner kicks
  + Display match stats
* Click data will be stored in txt or csv file and
* Data will be stored in lists or possibly tuples.
* Some of the data may be converted/analysed i.e. % shots on target. Time of 1st goal

#### User guide:

1. Gui element appears when file is run
2. user clicks start at start of a match. This
3. user clicks one of the relevant buttons as events happen in the game. These events are recorded in a txt file
4. user clicks 1st half end time when 1st half is over
5. user click 2nd half start time when 2nd half starts
6. user clicks one of the relevant buttons as events happen in the game. These events are recorded in a txt file, possibly appended to the same txt file.
7. user click 2nd half end time when 2nd half finishes
8. User clicks Display match stats button which results in a new gui appearing displaying all the relevant match stats.

Note: Some modifications may take place as dev progresses, not all the functionality listed may end up being present.

### Utility 2 – earth to planet travel time application

How long will it take to get to one of the 8(9 incl pluto) planets in our solar system depending on means of travel. Application will provide some listed means of travel and their typical speeds.

#### General functional spec:

* Gui element for user interaction
* Two Text or csv files which contain
  + planets and distances
  + transport mode and typical speeds I.e. bicycle, car, rocket

#### User guide:

1. Program is run
2. User selects a planet from a list displayed in the Gui
   1. Associated distances to planets will be stored in text file
3. User selects a mode of transport from a list displayed in the Gui
   1. Typical speeds of transport modes will be stored in txt/csv file
4. Clicks button to start calculation,. Using formula distance=(time x speed)
5. Answer and some additional detail is displayed in same gui… maybe be modifed gui.
6. Data is stored in text files and we will most likely use dictionaries as we will have key-value pairs

### Utility 3 – Gravitational Force calculator application

An application which will calculate the gravitational force that two objects exert on each other.

#### General functional spec:

* Gui containing 3 entry boxes in which data is entered by the user
* The Data entered is stored in a txt/csv file.
* Some example data is present in txt.vcsv file and sample comparison data is displayed to provide context.

#### User guide:

1. Program is run
2. GUI interface containing
   1. entry box 1 > for Object 1 and weight of object 1 – user inputs name and weight of object
   2. entry box 2 > for Object 2 and weight of object 2 – user inputs name and weight of object
   3. entry box in which user enters distance between the two objects
   4. Button to calculate the gravitational force
3. User click the Calculate button and the gravitational force between the two objects result is displayed in the GUI. We will use Newtons law of gravitation F=G\*(m1\*m2/d^2)
4. May include some example data for big and small objects to provide some context on the displayed answer.