

Task 2: software design and development (part A)

Problem description

Once a year a walking club asks all its members to submit the total number of miles they have walked. The club collates this information in a text file. A section of the .txt file, which includes the names of members and the total miles they walked, is shown below.

```
...  
Nikolai,Bryant,145.6  
Susan,Brown,34.2  
Teresa,Jones,398.5  
...
```

The information in the file is then used to select prize winners. Prizes will be awarded for:

- ◆ the furthest distance walked
- ◆ any members who have walked more than 70% of the furthest distance

A program is required to read the data for each member from the text file. The program should use this data to find then display the furthest distance walked. The names of every member who has walked more than 70% of the furthest distance should be written to an empty text file so that the file can be printed out later.

- 2a Using the problem description, identify the functional requirements of the program.
(3 marks)

Input(s)
Process(es)
Output(s)

Candidate name_____ Candidate number_____

- 2b The top-level design for the program is shown below.
Complete the design to show the missing data flow in and out of each module.
(2 marks)

Top-level design main program modules		
Read members' data from file into array of records	IN	
	OUT	members(forename,surname,distance)
Find the furthest distance walked	IN	
	OUT	furthest
Display the furthest distance walked	IN	furthest
	OUT	
Write club prize winners to file	IN	members(forename,surname,distance)
	OUT	

- ◆ Check your answers carefully, as you cannot return to part A after you hand it in.
- ◆ When you are ready, hand part A to your teacher or lecturer and collect part B.

Candidate name_____ Candidate number_____