Task 2: software design and development (part A)

Teetastic Golf Club has a maximum of 50 members. It would like to develop a program to manage the information of existing and new members.

Purpose

When a new member visits the golf club, an administrator enters the member's first name, surname and category of membership into the program. During this process, the new member enters a password that is stored along with their details. The password is then validated to ensure that it meets password strength requirements.

The program reads the existing member data from a text file and the new member's details are added to the existing member details. Details of all members are then displayed.

The program can find and display the number of members in each category (junior, adult or senior) and the total number of members.

Functional requirements

Inputs
♦ new member first name, surname, category and password from keyboard
♦ existing member first name, surname, category and password from file

Processes
♦ validate password
♦ store each member's details in appropriate data structures
♦ find the number of members in each category (junior, adult or senior)
♦ find the total number of members

Outputs
♦ display name, surname and category of all members
♦ display the number of members in each category
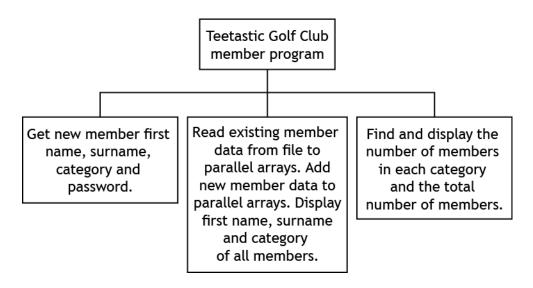♦ display the total number of members

There is no requirement to write data back to file.

2a   Using the information provided, identify two boundaries of this problem.

(2 marks)

Candidate name_____ Candidate number_____

A top level design of the main steps of the program is shown below.

```
                        ┌─────────────────────┐
                        │  Teetastic Golf Club │
                        │   member program     │
                        └─────────────────────┘
          ┌──────────────────────┼──────────────────────┐
┌───────────────────┐  ┌───────────────────────┐  ┌───────────────────┐
│ Get new member first│  │ Read existing member  │  │ Find and display the│
│   name, surname,    │  │  data from file to    │  │  number of members  │
│   category and      │  │ parallel arrays. Add  │  │   in each category  │
│   password.         │  │ new member data to    │  │     and the total   │
│                     │  │ parallel arrays. Display│ │  number of members. │
│                     │  │ first name, surname   │  │                     │
│                     │  │   and category        │  │                     │
│                     │  │   of all members.     │  │                     │
└───────────────────┘  └───────────────────────┘  └───────────────────┘
```

2b   Complete the table below to show data flow for the program.

(3 marks)

Top level design main program modules		
Get new member first name, surname, category and password.	IN	
	OUT	
Read existing member data from file to parallel arrays. Add new member data to parallel arrays. Display first name, surname and category of all members.	IN	
	OUT	
Find and display the number of members in each category and the total number of members.	IN	category()
	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_____