OCR

Task 2 System password.

Design, code test and evaluate a system to accept and test a password for certain characteristics.
 It should be at least 6, and no more than 12 characters long
 The system must indicate that the password has failed and why, asking the user to re enter
  their choice until a successful password is entered.
 A message to indicate that the password is acceptable must be displayed.
 Password strength can be assessed against simple criteria to assess its suitability; for
  example a password system using only upper and lower case alphabetical characters and
  numeric characters could assess the password strength as:
 WEAK if only one type used, eg all lower case or all numeric
 MEDIUM if two types are used
 STRONG if all three types are used.

For example
hilltop, 123471324, HAHGFD are all WEAK,
catman3 and 123456t are MEDIUM and
RTH34gd is STRONG

A message to indicate the password strength should be displayed after an acceptable
password is chosen.

Task 3 High scores database.

Design, code and test a system to store and manage user names and their highest score.
The system must be able to
 create a file
 add data to a file
 locate data in the file by name and their highest score
 delete an item and its associated data from the file
 locate and update a high score for a user
The system need only cater for 10 items

AQA

Scenario 1 – Mobile phone application

You have been asked to develop a system for a transport company. They are thinking of introducing an electronic system for students who travel to school by bus.

The new system will be known as 'ChipRider'. It has been invented to allow mobile phone users to buy credit that is stored within a mobile phone application. This can be used to buy tickets on buses. It means the students do not need to carry money to pay for their tickets.

The student can buy credit that is stored on the phone. When they get on a bus they can use their phone to buy the on-screen ticket. The student gives their phone to the driver. The driver types a code into the student's phone. The code takes credits from the stored balance on the phone. The application can store a maximum of 30 credits to buy tickets.

There are two types of ticket:
 Single – for a single journey from one place to another. This will cost 3 credits.
 Return – for a journey from one place to another and a journey back to where they came from. This will cost 5 credits.

The phone produces a 'ticket' on the screen that can be shown to an inspector if a ticket needs to be checked.

When there is not enough credit on the phone, the student can buy credits to add to their balance. This is done by the driver entering a special code that only he/she will know.
The system must be able to perform all of the actions described in the situations below.

1. Buy a ticket (one person)

1. Allow the phone to accept a code that the driver types in.
2. If the ticket is a single, deduct 3 credits from the balance.
3. If the ticket is a return, deduct 5 credits from the balance.
4. If there are not enough credits on the phone, allow the student to 'top-up' (see 3 below).
5. Generate a ticket for the journey on the screen (see 4 below).

2. Buy a ticket (more than one person – single journey ONLY)

1. Allow the phone to accept a code that the driver types in.
2. Deduct 3 credits from the balance for each person travelling. So for three people travelling, the cost would be 3 credits x 3 people = 9 credits.
3. If there are not enough credits on the phone, allow the student to 'top-up' (see 3 below).
4. Generate a single on-screen ticket that would cover each of the travellers for that journey (see 4 below). Specimen Controlled Assessment – Scenario 1 Mobile Phone - GCSE Computer Science – 4512/1

3. Top-up the phone with travel credits

1. Allow the phone to accept a code that the driver types in.
2. Allow the phone to be fully topped up to 30 credits in one transaction.
3. Allow the phone to be partially topped up to any number of credits below 30.

4. Display a ticket

Allow the phone to display a ticket for a driver or inspector to check.
The ticket should display the following information:
 Type of journey – Single or Return
 Number of students the ticket will cover for the journey
 Date and time the ticket was paid for
 The amount paid for the ticket

5. Protect your credits from misuse by other people
A parent of a student who has been asked to test this system is concerned that someone who steals a mobile phone could use the 'ChipRider' credit to make free journeys on the bus.

You need to think of a way that you could prevent this from happening.
Design and build a system that provides this functionality so that credit stored in the 'ChipRider' system is protected if the phone is stolen.