



GCSE

COMPUTER SCIENCE

**Paper 1 Computational thinking and
programming skills – C#**

8525/1A

INSERT

[Turn over]

FIGURE 1

```
1   $i \leftarrow$  USERINPUT
2  IF  $i \bmod 2 = 0$  THEN
3      OUTPUT  $i * i$ 
4  ELSE
5      OUTPUT  $i$ 
6  ENDIF
```

FIGURE 2

```
1 Console.WriteLine("Enter a number: ");
2 int i = Convert.ToInt32(Console.ReadLine());
3 if (i % 2 == 0) {
4     Console.WriteLine(i * i);
5 }
6 else {
7     Console.WriteLine(i);
8 }
```

[Turn over]

FIGURE 3

```
orderTotal ← USERINPUT
deliveryDistance ← USERINPUT
deliveryCost ← 0.0
messageOne ← "Minimum spend not met"
messageTwo ← "Delivery not possible"

IF deliveryDistance ≤ 5 AND orderTotal > 0.0 THEN

    IF orderTotal > 50.0 THEN

        deliveryCost ← 1.5

        OUTPUT deliveryCost

    ELSE IF orderTotal > 25.0 THEN
```

```
deliveryCost ← (orderTotal / 10) * 2
    OUTPUT deliveryCost
ELSE
    OUTPUT messageOne
ENDIF
ELSE
    OUTPUT messageTwo
ENDIF
```

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[Turn over]

FIGURE 4

```
1  int charge = 0;
2  Console.WriteLine("Enter your car registration: ");
3  string carReg = Console.ReadLine();
4  while (carReg.Length > 8) {
5      string displayMessage = " is not valid";
6      Console.WriteLine(displayMessage);
7      carReg = Console.ReadLine();
8  }
9  Console.WriteLine("Enter your stay in hours: ");
10 int hours = Convert.ToInt32(Console.ReadLine());
```

```
11  if (hours < 2) {  
12      charge = 0;  
13  }  
14  else {  
15      charge = hours * 2;  
16  }  
17  Console.WriteLine(charge);
```

7

[Turn over]

FIGURE 5

PROGRAM A
<pre>Console.WriteLine("Enter a number: "); int num = Convert.ToInt32(Console.ReadLine()); int total = 0; for (int i = 1; i < num + 1; i++) { total = total + i; } Console.WriteLine(total);</pre>

PROGRAM B	
<pre>Console.WriteLine("Enter a number: "); int num1 = Convert.ToInt32(Console.ReadLine()); int num2 = num1 + 1; num2 = num1 * num2; num2 = num2 / 2; Console.WriteLine(num2);</pre>	

[Turn over]

FIGURE 6

```
1  int[] numbers = { 11, 14, 56, 4, 12, 6, 42, 2 };
2  int count = 0;
3  Random r = new Random();
4  while (count < 10) {
5      count = count + 1;
6      int number = r.Next(0, 8);
7      Console.WriteLine(numbers[count]);
8  }
```

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[Turn over]

FIGURE 7

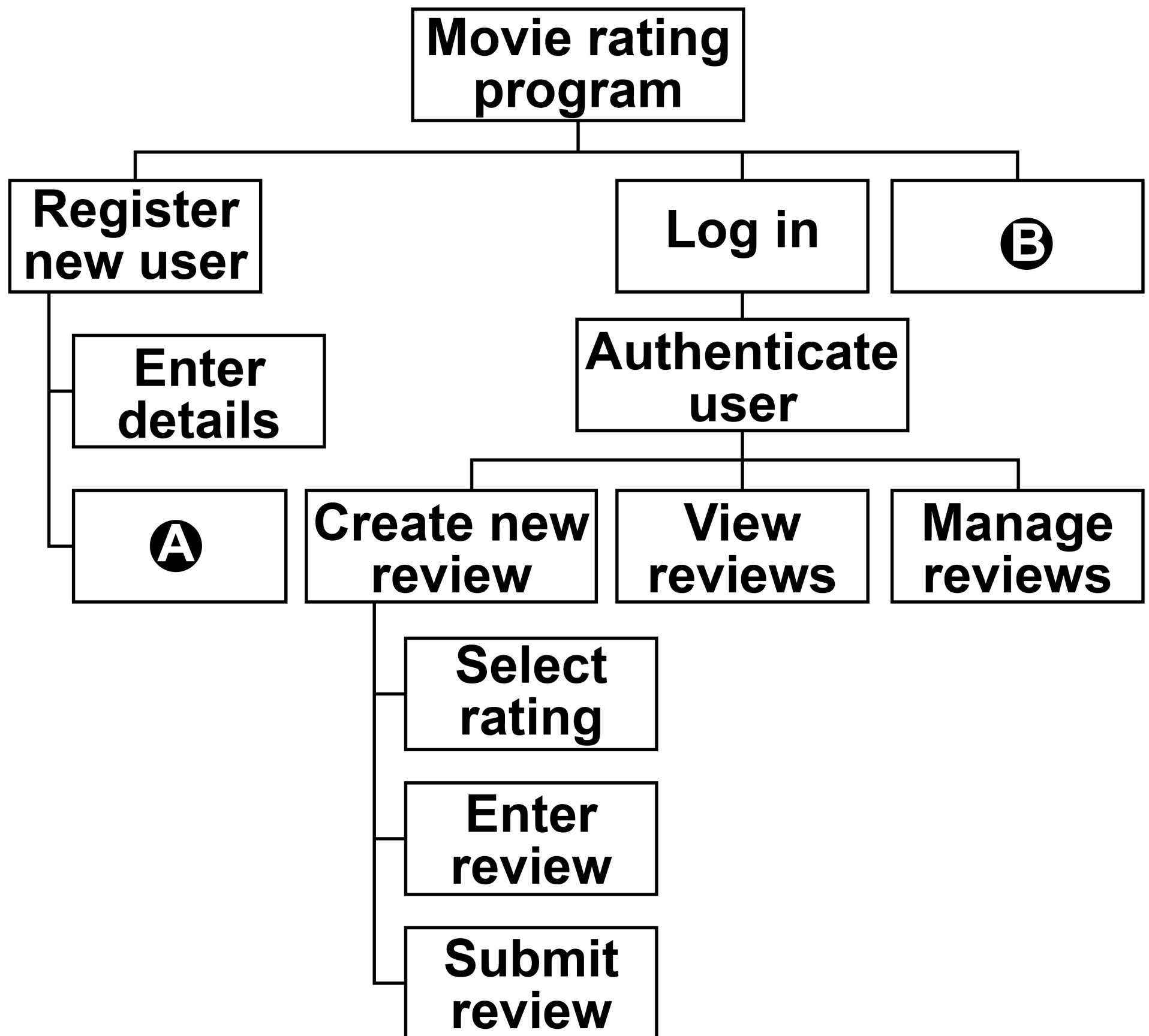


FIGURE 8

```
1 names ← ['Lily', 'Thomas']  
2 name1 ← 'Sarah'  
3 name2 ← 'Freddie'  
4 OUTPUT name1[0]  
5 OUTPUT LEN(names)  
6 var ← SUBSTRING(0, 3, name1)  
7 OUTPUT var
```

[Turn over]

FIGURE 9

```
SUBROUTINE  calculate(n)
    a ← n
    b ← 0
    REPEAT
        a ← a DIV 2
        b ← b + 1
    UNTIL a ≤ 1
    OUTPUT b
ENDSUBROUTINE
```

FIGURE 10

```
SUBROUTINE calculate(n)
    a ← n
    b ← 0
    WHILE a > 1
        a ← a DIV 2
        b ← b + 1
    ENDWHILE
    OUTPUT b
ENDSUBROUTINE
```

[Turn over]

FIGURE 11

bit	byte	getSize	OUTPUT
rate	res	RETURN	sampRate
seconds	size	size + 8	size * 8
size / 8	size MOD 8	SUBROUTINE	USERINPUT

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FIGURE 13

```
1  arr[0] ← 'c'
2  arr[1] ← 'b'
3  arr[2] ← 'a'
4  FOR i ← 0 TO 1
5      FOR j ← 0 TO 1
6          IF arr[j + 1] < arr[j] THEN
7              temp ← arr[j]
8              arr[j] ← arr[j + 1]
9              arr[j + 1] ← temp
10         ENDIF
```

11 ENDFOR

12 ENDFOR

FIGURE 14

```
Console.WriteLine("Enter card position: ");
```

```
int position = Convert.ToInt32(Console.ReadLine());
```

[Turn over]

FIGURE 15

CPU	ALU	Pixel
NOT gate	Binary	LAN
Register	Cache	Protocol

FIGURE 17

	0	1	2
0	CPU	ALU	*
1	*	*	LAN
2	Register	Cache	*

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