

LOCATION: SWANSEA

LLEOLIAD: ABERTAWE

LEVEL 4

LEFEL 4

EXAMINATION PERIOD
MAY 2019

CYFNOD ARHOLIADAU
MAI 2019

MODULE CODE: ACCA4017
SOFTWARE DEVELOPMENT

TIME: 2 HOURS

ANSWER ALL QUESTIONS

NOTE: IN-CLASS TEST, TIME/DATE TO BE ARRANGED BY LECTURER

Equipment or materials required – Computers with Visual Studio installed

Adnoddau neu ddefnyddiau sydd eu hangen – Cyfrifiraduron gyda Visual Studio

Candidate Name	Callum Hall
Student ID	HAL16829469
Signed	CHall
Date	7/5/19

ANSWER ALL QUESTIONS

1. a) Which variable type would be most suitable to store each of the following values?

3.142	double	✓
123	~~int~~ byte	✓
Jim	String	✓
79.6	~~double~~ Single	✓
a	char	✓
-34.52	double	✓

6

[1 mark each - 6 marks total]

1 b) What errors are present in the following program to calculate the area of a triangle?

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
```

```
namespace ExamQ1b
{
```

```
    class Program
    {
```

```
        static void Main(string[] args)
        {
```

```
            Console.WriteLine("Area of Triangle");
            Console.Read("Enter base length");
```

should be write

```
            double b = double.Parse(Console.ReadLine);
            Console.Write("Enter base height");
            double h = double.Parse(Console.ReadLine())
```

no brackets

no semi colon

```
            double area = b * h * 0.5;
```

```
            Console.WriteLine("Area of triangle is {0}.", area.ToString("0.00"));
```

should be a 0 inside brackets

```
            Console.ReadLine(); //pause
```

```
        }
    }
}
```

5

[5 marks]

1 c) How many iterations do the following loops have?

i)

```
for (int index=0; index<12; index++)
{
    Console.WriteLine(index);
}
```

12

ii)

```
int index=1;
while(index<6)
{
    Console.WriteLine(index);
    index = index + 1;
}
```

5

4

[4 marks]

1. d) What is the value of the integer variable total after the following code is executed?

```
int total=1;
for (x=0; x<7; x++)
{
    total=total+x;
    if(x == 4)
    {
        total=0;
    }
}
```

1 2 4 0 3 7

11

[3 marks]

3

1 e) Given the following program:

```
void main()
{
    int x = 3;
    if( x .... )
    {
        Console.WriteLine("x does not exceed 3");
    }
    .....(x....)
    {
        Console.WriteLine("x exceeds 5" );
    }
    else
    {
        Console.WriteLine ("x is " + x );
    }
}
```

i) Write the code you would use to test x in the first condition:

$x \leq 3$ ~~x~~ [1 mark]

ii) Write the code you would use to test x in the second condition x:

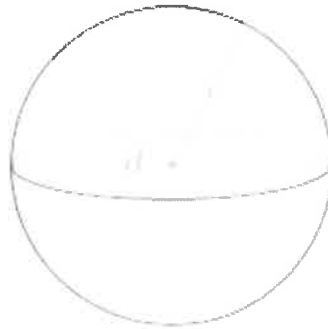
$x > 5$ [1 mark]

[20 marks total for Question 1]

2. Calculating the surface area of a sphere

The surface area of a sphere is calculated using the formula:

$$A = 4\pi r^2$$



Task:

Write a program to calculate the ~~volume~~^{area} using the above formula displaying the answer in a suitable message and showing value to 2 decimal places.

Allow the user to enter the measurement for r . You may set PI as 3.142

[10 marks total for Question 2]

3. Using arrays

Task:

Prompt the user to enter 5 temperatures into an array (in Celsius).

After the temperatures have been entered, print each of the values on the screen using a loop.

After this, convert the five temperatures to Fahrenheit and print them on the screen to two decimal places.

Formula: $Fahrenheit = (Celsius * 9/5) + 32$

[15 marks total for Question 3]

4. Using Array Search Pattern

Ask the user to enter 8 names.

Ask the user to enter a search name.

Search the previously entered names for the search name.

Either display a message "Found It" or a message "Failed to find it".

[15 marks total for Question 4]

Diwedd/End


```

1  using System;
2
3  namespace ExamQ2
4  {
5      class Program
6      {
7          static void Main(string[] args)
8              Callum Hall
9              {
10                 double pi = 3.142;
11                 double radius = 0;
12                 double area = 0;
13
14                 Console.WriteLine("Calculating area of a sphere");
15                 Console.WriteLine("Enter a radius");
16                 //stores the users input into the radius variable
17                 radius = double.Parse(Console.ReadLine());
18
19                 //validation to check that the user has not typed a minus number
20                 if (radius < 0)
21                 {
22                     Console.WriteLine("Cannot be lower than 0");
23                 }
24                 else
25                 {
26                     //calculates the area using the formula for a sphere
27                     radius = radius * 2;
28                     area = 4 * pi;
29                     area = area * radius;
30                     //outputs the area to the screen
31                     Console.WriteLine("The area is {0}", area.ToString("0.00"));
32                 }
33
34                 Console.ReadLine();
35             }
36         }
37     }

```

Callum Hall

//HAL16829469

no longer a radius then!

inappropriate use of
variable names for
intermediate results
of calculations

Constant 1
values 1
Formula 4
o/p 2

8


```

1  using System;
2
3  namespace ExamQ3
4  {
5      class Program
6      {
7          static void Main(string[] args)
8          {
9              //HAL16829469 Callum Hall
10
11              double[] temperatures = new double[5];
12              double[] fahrenheit = new double[5];
13              double result;
14
15              Console.WriteLine("Enter 5 temperatures (in celsius)");
16
17              //Loop that lets the user input the temperatures
18              for (int i = 0; i < temperatures.Length; i++)
19              {
20                  temperatures[i] = double.Parse(Console.ReadLine());
21              }
22
23              Console.WriteLine();
24
25              //Loop that outputs all the temperatures that have been input
26              for (int i = 0; i < temperatures.Length; i++)
27              {
28                  Console.WriteLine(temperatures[i]);
29              }
30
31              Console.WriteLine();
32
33              //Loop that calculates fahrenheit then outputs it to the screen.
34              for (int i = 0; i < temperatures.Length; i++)
35              {
36                  fahrenheit[i] = (temperatures[i] * 9 / 5) + 32;
37                  Console.WriteLine(fahrenheit[i].ToString("0.00"));
38              }
39
40              Console.ReadLine();
41          }
42      }
43

```

loops 3

arrays 5

2dp 2

Conver 5

~~code use of loops
that could be
more efficient.~~

15

~~14~~




```

1  using System;
2
3  namespace ExamQ4
4  {
5      class Program
6      {
7          static void Main(string[] args)
8          {
9              string[] names = new string[8];
10             string searchName;
11             bool found = false;
12
13             Console.WriteLine("Enter 8 names");
14
15             //Loop to input names
16             for (int i = 0; i < names.Length; i++)
17             {
18                 names[i] = Console.ReadLine();
19             }
20
21             //asking the user to input a name to search then storing it in the
22             searchName variable
23             Console.WriteLine("Search for a name");
24             searchName = Console.ReadLine();
25
26             //foreach loop which goes though each name in the names array
27             foreach (string name in names)
28             {
29                 //if a name in the array is the same as the searched name then
30                 set found to true
31                 if (name == searchName)
32                 {
33                     found = true;
34                 }
35
36                 //if a name has been found it will output a message saying it has
37                 been found or not found
38                 if (found)
39                 {
40                     Console.WriteLine("Found it");
41                 }
42                 else
43                 {
44                     Console.WriteLine("Failed to find it");
45                 }
46
47                 Console.ReadLine();
48             }
49         }
50     }
51 }

```

//HAL16829469 Callum

Delays 3
 Array 2
 Search 5
 OneMsg 3
 Code start 2

15

