

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

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<i>Student ID</i>	GAR15822850
<i>Signed</i>	KGormey
<i>Date</i>	07/05/19

ANSWER ALL QUESTIONS

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

3.142	float ✓
123	Integer ✓
Jim	String ✓
79.6	Single ✓
a	String ✓ ~~char~~
-34.52	float double ✓

5

[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");
```

```
            double b = double.Parse(Console.ReadLine);
```

```
            Console.Write("Enter base height");
```

```
            double h = double.Parse(Console.ReadLine());
```

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

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

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

```
        }
```

```
    }
```

```
}
```

write
Readline

double

Should have a ()

remove ; ok
Should could use +

3

[5 marks]

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

i)

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

~~13~~ 12

ii)

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

~~4~~ 5 0

[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;
    }
}
```

*t=1 x=0
t=2 x=1
t=4 x=2
t=7 x=3
t=11 x=4
t=0 x=5
t=5 x=6
t=11 x=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: *if (x < 3)*

..... [1 mark]

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

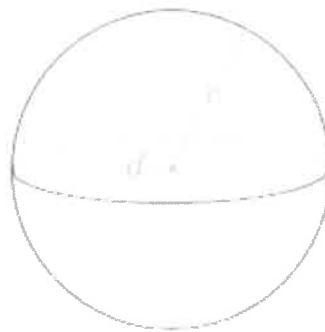
if (else if (x > 5)) [1 mark] ✓

[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:

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



Handwritten calculations:

$$\begin{aligned} & \text{Circumference} = 2\pi r \\ & r \times 3.142 = d \\ & 4 \times 3.142 \times r \times r = A \end{aligned}$$

Task:

Write a program to calculate the ^{area} ~~volume~~ 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 //Kyle Garmey
2 //GAR15822850
3 using System;
4 using System.Collections.Generic;
5 using System.Linq;
6 using System.Text;
7 using System.Threading.Tasks;
8
9 namespace ConsoleApp1
10 {
11     class Program
12     {
13         static void Main(string[] args)
14         {
15             double pie = 3.142;
16             double diamiter = 4 * pie; //Sets a value of pie to 3.142 and calculates diamiter
17             //To calculate the area of a sphere please enter the radius
18             Console.WriteLine("To calculate the area of a sphere please enter the radius");
19             //Prints message to console asking fo input
20
21             double radius = double.Parse(Console.ReadLine());
22             double area = radius * radius;
23             //Converts user input from string to double & calculates the area
24
25             Console.WriteLine("Area of a sphere is " + area.ToString("0.00"));
26             //Converts from double to string and prints to 2 decimal places
27
28             Console.ReadLine();
29             //Pause
30
31         }
32     }
33 }
34
35
36
37

```

Constub? 1
 Variable name etc 1
 Formulae. ①
 Formulae o/p 2

45


```

1 //Kyle Garmey
2 //GAR15822850
3 using System;
4 using System.Collections.Generic;
5 using System.Linq;
6 using System.Text;
7 using System.Threading.Tasks;
8
9 namespace ConsoleApp1
10 {
11     class Program
12     {
13         static void Main(string[] args)
14         {
15
16             Console.WriteLine("Please enter in 5 temperatures in Celsius");
17             //Asks for user to enter in 5 temperatures
18
19             double[] temperatures = new double[5];
20             //initiates a Array with double values
21
22             for (int i = 0; i < 5; i++)
23             {
24
25                 double input = double.Parse(Console.ReadLine());
26                 temperatures[i] = input;
27
28             }
29             //Begins a loop which takes user input 5 times and enters it into
30             the array
31
32             for (int i = 0; i < temperatures.Length; i++)
33             {
34                 Console.WriteLine(temperatures[i]);
35             }
36             //Displays all the values in the current array
37
38             for (int i = 0; i < 5; i++)
39             {
40                 temperatures[i] = temperatures[i] * 9 / 5 + 32;
41             }
42             //Converts each value in the array to Fahrenheit
43
44             for (int i = 0; i < temperatures.Length; i++)
45             {
46
47                 Console.WriteLine("Temperature "+ i +" converted from Fahrenheit
48                 to Celsius is: " + temperatures[i].ToString(" 0.00"));
49             }
50             //Displays values to 2 decimal places
51
52             Console.ReadLine();
53             //Pause
54         }
55     }
56 }

```

loops 3
 array 5
 2dp 2
 Convin 5
 15


```

1 //Kyle Garmey
2 //GAR15822850
3 using System;
4 using System.Collections.Generic;
5 using System.Linq;
6 using System.Text;
7 using System.Threading.Tasks;
8
9 namespace ConsoleApp1
10 {
11     class Program
12     {
13         static void Main(string[] args)
14         {
15
16             Console.WriteLine("Please enter in 8 Names");
17             //Asks for user to enter in 8 names
18
19             string[] names = new string[8];
20             //initiates an Array with double values
21
22             for (int i = 0; i < 8; i++)
23             {
24
25                 string input = Console.ReadLine();
26                 names[i] = input;
27
28
29
30             }
31             //Begins a loop which takes user input 8 times and enters it into
32             the array
33
34             Console.WriteLine("Please enter a name to search");
35             string keyterm = Console.ReadLine();
36             //Asks user for search term
37
38             for (int i = 0; i < 8; i++)
39             {
40                 if (names[i] == keyterm)
41                 {
42                     Console.WriteLine("Found it");
43                     break;
44                 }
45                 if (i >= 7)
46                 {
47                     Console.WriteLine("Failed to find it");
48                 }
49             }
50
51             //Checks for the serch term in the array and returns weather it
52             found it or not
53
54             Console.ReadLine();
55             //Pause
56         }
57     }
58 }

```

Data Types 3
 Array 2
 Search 5
 Message 3
 Structure 1

14

ok ... but
 there is a
 more efficient
 way of doing
 this.

