ព្រះរាជាណាចក្រកម្ពុជា

ជាតិ សាសនា ព្រះមហាក្សត្រ

Institute of technology of Cambodia

Department of Information and communication Engineering

The lesson taking about using structure in c++

Class activity (03-03-2022)

TP: Algorithm and Programming ll

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Year: 2022-2023

1) Task calculate factorial
2) Task suit Fibonacci
3) Task Sum number
4) Task(1.calculate the summation, 2.display message, 3.count the number of digits)

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```cpp
#include<iostream>
using namespace std;

//Task 1  (Calculate factorial number)
int computeFac(int n)
{
    if(n==0 || n==1)     //base case
    {
        return 1;
    }
    else                 //general
    {
        return n*computeFac(n-1);
    }
}

//Task 2 (Find Suit Fibonacci)
int computeFibo(int n)
{
    if(n==1 || n==2)
    {
        return 1;
    }
    else
    {
        return computeFibo(n-1) + computeFibo(n-2);
    }
}

```

```
29
30  //Task 3  (Compute sum 1 to n)
31  int computeSum(int n)
32  {
33      if(n==1)
34      {
35          return 1;
36      }
37      else
38      {
39          return (n) + computeSum(n-1);
40      }
41  }
42
43  //Task 4
44
45  //ex1: Calculate summation
46  int calculateSum(int n)
47  {
48      if(n==2)
49      {
50          return 2;
51      }
52      else if(n%2 == 0)
53      {
54          return n + calculateSum(n-2);
55      }
56      else if(n%2 != 0)
57      {
58          return n-1 + calculateSum(n-3);
59      }
60  }
```

```
61
62  //ex2: Display Hello 1 to Hello n
63  void displayHello(int n)
64  {
65      if(n==1)
66      {
67          cout<<"\tHello "<<n<<", ";
68      }
69      else
70      {
71          displayHello(n-1);
72          cout<<"Hello "<<n<<", ";
73      }
74
75  }
76
77  //ex3: Count the number of digits in an integer n
78  int countNumOfDigit(int n)
79  {
80      int counter=1;
81
82      if(n/10 == 0)
83      {
84          return 1;
85      }
86      else
87      {
88          return 1 + countNumOfDigit(n/10);
89      }
90  }
91
```

```cpp
int main()
{
    //displayltoN(10);

    //int result;
    int n;
    int num;

    cout<<"\n\nEnter n number: ";
    cin>>n;

    cout<<"\n\t=> Factorial of "<<n<<"! = "<<computeFac(n)<<endl<<endl;

    cout<<"\n\t=> Suit Fibonacci term "<<n<<" = "<<computeFibo(n)<<endl;

    cout<<"\n\t=> Summation from 1 to "<<n<<" = "<<computeSum(n)<<endl<<endl;

    //ex1
    cout<<"\nEnter a number: ";
    cin>>num;
    cout<<"\n\t=> Exercise 1: The summation of all even number of "<<num<<" = "<<calculateSum(num)/num<<endl<<endl;

    //ex2
    cout<<"\n\t=> Exercise 2: ";
    displayHello(n);
    cout<<endl<<endl;

    //ex3
    cout<<"\n\t=> Exercise 3: Number "<<num<<" has "<<countNumOfDigit(num)<<" digits "<<endl<<endl;
}
```

```
"C:\Users\Admin\Desktop\code c++\TP12C++\class activity venthon,e20191250.exe"


Enter n number: 10

        => Factorial of 10! = 3628800


        => Suit Fibonacci term 10 = 55

        => Summation from 1 to 10 = 55


Enter a number: 10

        => Exercise 1: The summation of all even number of 10 = 3


        => Exercise 2:  Hello 1, Hello 2, Hello 3, Hello 4, Hello 5, Hello 6, Hello 7, Hello 8, Hello 9, Hello 10,


        => Exercise 3: Number 10 has 2 digits


Process returned 0 (0x0)   execution time : 9.484 s
Press any key to continue.
```