Practical Lecture : Function

Quick Recap

Let's take a quick recap of previous lecture –

A) friend function

B) friend class

C)Call by value

D) call by reference

E)Call by address

Today's

Today we are going to cover -

● MCQ Question

● Output base question

● Coding Question

Let's Get Started-

1. Recursion is a method in which the solution of a problem depends on _____

a) Larger instances of different problems

b) Larger instances of the same problem

c) Smaller instances of the same problem

d) Smaller instances of different problems

1. Recursion is a method in which the solution of a problem depends on _____

a) Larger instances of different problems

b) Larger instances of the same problem

c) Smaller instances of the same problem

d) Smaller instances of different problems

Answer: c

Explanation: In recursion, the solution of a problem depends on the solution of smaller instances of the same problem

2. Recursion is similar to which of the following?

a) Switch Case

b) Loop

c) If-else

d) if elif else

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a) Recursion is always better than iteration

b) Recursion uses more memory compared to iteration

c) Recursion uses less memory compared to iteration

d) Iteration is always better and simpler than recursion

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How many ways of passing a parameter are there in c++?

a) 1

b) 2

c) 3

d) 4

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MCQ 5

By default how the value are passed in c++?

a) call by value

b) call by reference

c) call by pointer

d) call by object

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Find the output

```cpp
#include <iostream>
using namespace std;
void copy (int& a, int& b, int& c)
{
    a *= 2;//a=a*2
    b *= 2;
    c *= 2;
}
int main ()
{
    int x = 1, y = 3, z = 7;
    copy (x, y, z);
    cout << "x =" << x << ", y =" << y << ", z =" << z;
    return 0;
}
```

2 6 14

Find the output

```cpp
#include <iostream>
using namespace std;
void fun(int &x)
{
    x = 20;
}
int main()
{
    int x = 10;
    fun(x);
    cout << "New value of x is " << x;
    return 0;
}
```

Solution

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Find the output

```cpp
#include <iostream>
using namespace std;
void square (int *x)
{
    *x = (*x + 1) * (*x);
}
int main ( )
{
    int num = 10;
    square(&num);
    cout << num;
    return 0;
}
```

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Find the output

```
#include<stdio.h>
using namespace std;
int f(int n);
int main()
{
    int n=10;
  // int f(n);
    cout<<f(n);
}
int f(int n)
{
    if(n>0)

return(n+f(n-2)); //10+f(8)=10+8+f(6)=10+8+6+f(4)=10+8+6+4+f(2)=10+8+6+4+2+f(0)=30
}
```

30

Find the output

```
void my_recursive_function(int n)
{
    if(n == 0)
    return;
    my_recursive_function(n-1);
    cout<<n;
}
int main()
{
    my_recursive_function(10);
    return 0;
}
```

Solution

Prints the numbers from 1 to 10

Program output?

```cpp
#include <iostream>
using namespace std;
int main()
{
int j=1,k=2;
int *a ,*b;
a=&j;
b=&k;
int sum = *a + *b;
*b =*a;
*a =sum -*b;
cout<<"j="<<j<<" k="<<k<<" sum="<<sum;
cout<<" "<<*a+2<<" "<<*(b+2);
return 0;
}
```

Solution

Output:
j=2 k=1 sum=3 4 32765
A program is swapping values of i and j.

Program output?

```cpp
#include <iostream>
using namespace std;
int fun(int);
int main()
{    int n;
     cout<<"Enter a number:";
     cin >> n;
     cout << "Output of  the program is " <<" = " <<fun(n);
     return 0;
}
int fun(int n)
{  if (n == 0)
       return 0;
     return (n % 10 + fun(n / 10));
}
```

Solution?

Output: Enter number:76
Output of the program is =13

Explanation:
Return 13   //13 will be returned
13=return(6 + fun(7))   //76%10=6 and 76/10
 7=   return(7+fun(0))   // 7%10=7 and 7/10=0
0=   0   //fun(0) will return 0.

A program is addition of digit in number.

Coding Question

1.Write a program to print the fibonaccie series using recursion. 10
0 1 1 2 3 5 8 13 21
2.Write a program to check whether a number is palindrome or not using recursion.

3.Print all the natural number 21 to 55 using recurssion.

4.write a program to print the factorial of a number by taking input from the user.

Any
Questions ??

Thank You!

See you guys in next class.