C++ ASSIGNMENT 3 (RECURSION)

Name:--Prasad Bhandare.

1.WAP to calculate factorial of a number.

Code:--

```
#include<iostream>
using namespace std;
int fact(int n)
{
if(n==0)
return 1;
else
return n*fact(n-1);
}
int main()
{
int n;
cout<<"Enter a number : ";
cin>>n;
cout<<"Factorial of "<<n<<" is "<<fact(n);
return 0;
}
```

Output:--

2. WAP to print all digits of a number and their sum.

Code:--

```
#include<iostream>
using namespace std;
int sum(int n)
{
if(n==0)
return 0;
cout<<n%10<<endl;
return n%10 + sum(n/10);
}
int main()
{
int n;
```

```
    cout<<"Enter a number = ";
    cin>>n;
    cout<<"Sum of digits of "<<n<<" is \n";
    cout<<sum(n);
    return 0;
    }
```

Output:--

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

Enter a number = 249
Sum of digits of 249 is 9
4
2
15
PS D:\Prasad_pg_dac\Cpp_prgm\Assi_03>
```

3. WAP to print reverse of a number.

Code:--

```
    #include<iostream>
    using namespace std;
    int reverse(int n, int sum)
    {
    if(n>0)
    {
    int r = n % 10;
    sum = sum * 10 + r;
    sum=reverse(n/10,sum);
    }
    return sum;
    }
    int main()
    {
    int n;
    cout<<"Enter a number : ";
    cin>>n;
    cout<<reverse(n, 0);
    return 0;
    }
```

Output:--

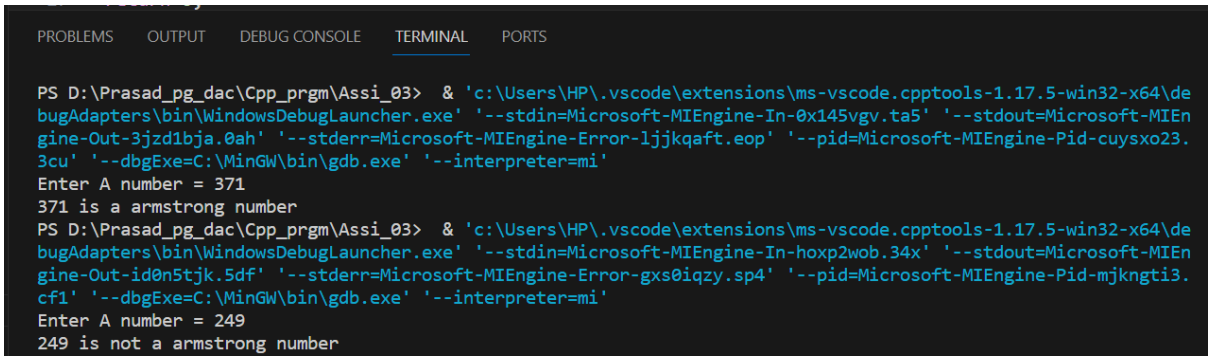
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

bugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-xp11zj1f.55t' '--stdout=Microsoft-MIEn
gine-Out-rodexmcd.hes' '--stderr=Microsoft-MIEngine-Error-n4hhayf4.w4m' '--pid=Microsoft-MIEngine-Pid-2nfmz5rj.
bmc' '--dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter a number : 2492
2942
PS D:\Prasad_pg_dac\Cpp_prgm\Assi_03>
```

4. WAP to check whether the number is Armstrong or not.

Code:--

```
#include<iostream>
#include<cmath>
using namespace std;
int armstrong(int num, int count)
{
if(num==0)
return 0;
return pow((num%10), count)+armstrong((num/10), count);
}
int main()
{
int n, count=0;
cout<<"Enter A number = ";
cin>>n;
int num = n;
while(n!=0)
{
count++;
n=n/10;
}
int temp = armstrong(num, count);
if (temp == num)
cout<<num<<" is a armstrong number";
else
cout<<num<<" is not a armstrong number";
return 0;
}
```

Output:--

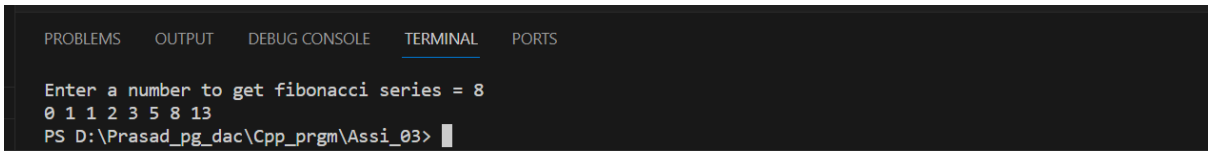


5. WAP to print the Fibonacci series in a given range.

Code:--

```
#include<iostream>
using namespace std;
int fibonacci(int n)
{
if(n==0 || n==1)
return n;
else
return fibonacci(n-1)+fibonacci(n-2);
}
int main()
{
int n;
cout<<"Enter a number to get fibonacci series = ";
cin>>n;
for(int i=0; i<n; i++)
{
cout<<fibonacci(i)<<" ";
}
return 0;
}
```

Output:--



6. WAP to check whether the number entered is palindrome or not.

Code:--

```
#include<iostream>
using namespace std;
int palindrome(int n, int rev)
{
if(n==0)
return rev;
rev = (rev*10) + (n%10);
return palindrome(n/10, rev);
}
int main()
{
int n;
```

```
cout<<"Enter a number = ";
cin>>n;
int ans = palindrome(n, 0);
if(n==ans)
cout<<"Given Number is a Palindrome Number";
else
cout<<"Given Number is Not a Palindrome Number";
return 0;
}
```

Output:--