

## C++ ASSIGNMENT 2 (FUNCTIONS)

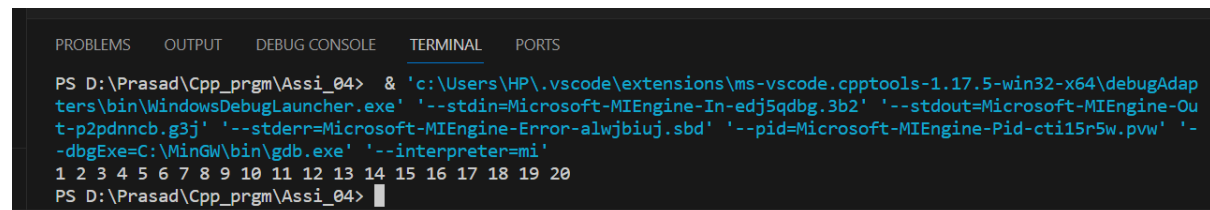
Q) - Solve the questions of C assignment 1.2 using functions.

1.WAP for printing all natural numbers till 20.

Code:--

```
#include<iostream>
using namespace std;
void printNatural()
{
    for(int i=1; i<=20; i++)
    {
        cout<<i<<" ";
    }
}
int main()
{
    printNatural();
    return 0;
}
```

Output:--



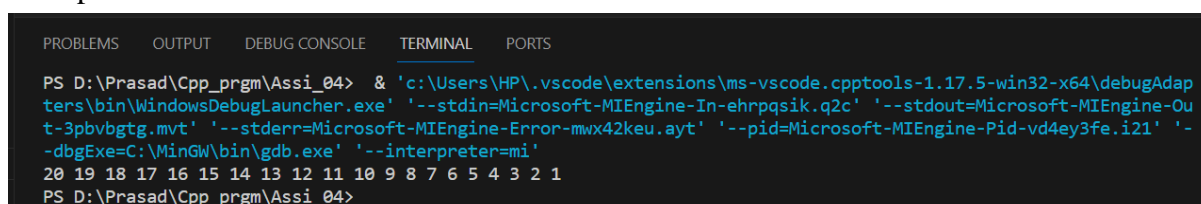
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-edj5qdbg.3b2' '--stdout=Microsoft-MIEngine-Ou
t-p2pdnncb.g3j' '--stderr=Microsoft-MIEngine-Error-alwjbiuj.sbd' '--pid=Microsoft-MIEngine-Pid-cti15r5w.pvw' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
PS D:\Prasad\Cpp_prgm\Assi_04>
```

2.WAP for printing all natural numbers in reverse order starting from 20.

Code:--

```
#include<iostream>
using namespace std;
void reverseNatural()
{
    for(int i=20; i>0; i--)
    {
        cout<<i<<" ";
    }
}
int main()
{
    reverseNatural();
    return 0;
}
```

Output :--



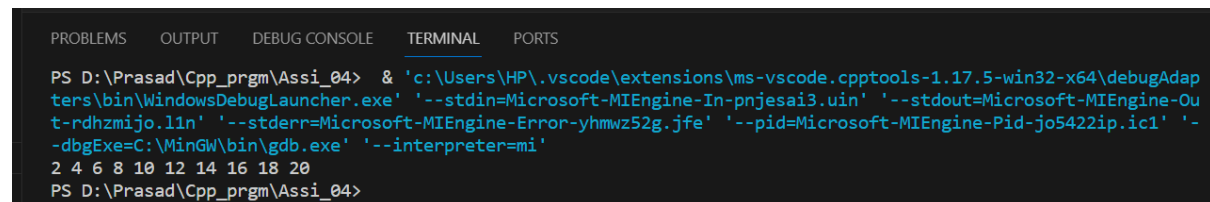
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-ehrpqsiq.q2c' '--stdout=Microsoft-MIEngine-Ou
t-3pbvbggtg.mvt' '--stderr=Microsoft-MIEngine-Error-mwx42keu.ayt' '--pid=Microsoft-MIEngine-Pid-vd4ey3fe.i21' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
PS D:\Prasad\Cpp_prgm\Assi_04>
```

3.WAP for printing all even numbers from 1 to 20.

Code:--

```
#include<iostream>
using namespace std;
void printEvenNo()
{
    for(int i=1; i<=20; i++)
    {
        if(i%2==0)
            cout<<i<<" ";
    }
}
int main()
{
    printEvenNo();
    return 0;
}
```

Output:--



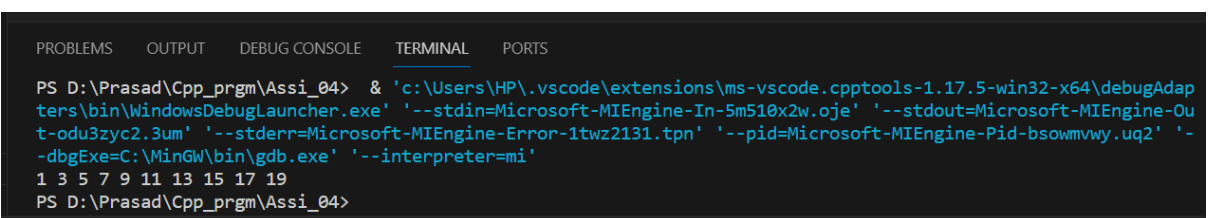
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-pnjesai3.uin' '--stdout=Microsoft-MIEngine-Ou
t-rdhzmijo.11n' '--stderr=Microsoft-MIEngine-Error-yhmwz52g.jfe' '--pid=Microsoft-MIEngine-Pid-jo5422ip.ic1' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
2 4 6 8 10 12 14 16 18 20
PS D:\Prasad\Cpp_prgm\Assi_04>
```

4.WAP for printing all odd numbers from 1 to 20.

Code:--

```
#include<iostream>
using namespace std;
void printOddNo()
{
    for(int i=1; i<=20; i++)
    {
        if(i%2!=0)
            cout<<i<<" ";
    }
}
int main()
{
    printOddNo();
    return 0;
}
```

Output:--



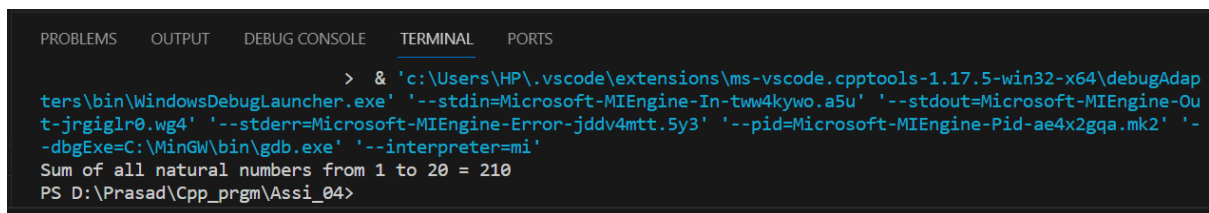
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-5m510x2w.oje' '--stdout=Microsoft-MIEngine-Ou
t-odu3zyc2.3um' '--stderr=Microsoft-MIEngine-Error-1twz2131.tpn' '--pid=Microsoft-MIEngine-Pid-bsowmvwy.uq2' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
1 3 5 7 9 11 13 15 17 19
PS D:\Prasad\Cpp_prgm\Assi_04>
```

5.WAP for adding all numbers from 1 to 20.

Code:--

```
#include<iostream>
using namespace std;
void addNumbers()
{
    int sum = 0;
    for(int i=1; i<=20; i++)
    {
        sum = sum + i;
    }
    cout<<"Sum of all natural numbers from 1 to 20 = "<<sum;
}
int main()
{
    addNumbers();
    return 0;
}
```

Output:--



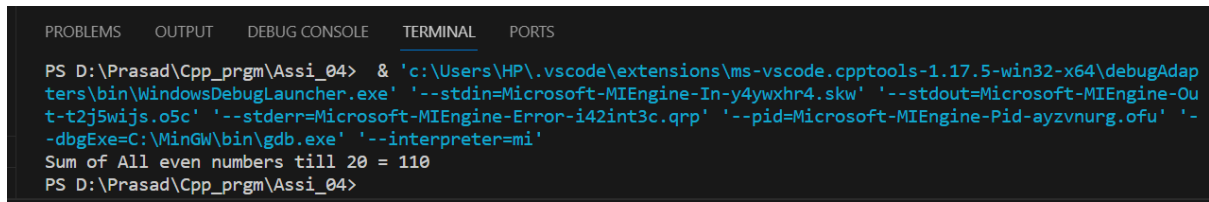
```
> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-tww4kywo.a5u' '--stdout=Microsoft-MIEngine-Ou
t-jrgiglr0.wg4' '--stderr=Microsoft-MIEngine-Error-jddv4mtt.5y3' '--pid=Microsoft-MIEngine-Pid-ae4x2gqa.mk2' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Sum of all natural numbers from 1 to 20 = 210
PS D:\Prasad\Cpp_prgm\Assi_04>
```

6.WAP for finding sum of all even numbers till 20.

Code:--

```
#include<iostream>
using namespace std;
void addEvenNumbers()
{
    int sum = 0;
    for(int i=1; i<=20; i++)
    {
        if(i%2==0)
        sum = sum + i;
    }
    cout<<"Sum of All even numbers till 20 = "<<sum;
}
int main()
{
    addEvenNumbers();
    return 0;
}
```

Output:--



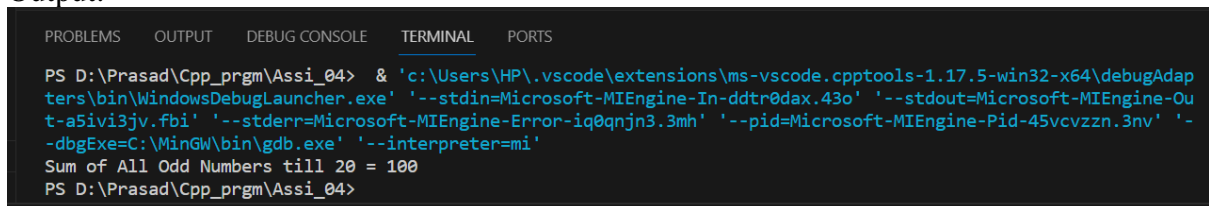
```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-y4ywxhr4.skx' '--stdout=Microsoft-MIEngine-Out-t2j5wijs.o5c' '--stderr=Microsoft-MIEngine-Error-i42int3c.qrp' '--pid=Microsoft-MIEngine-Pid-ayzvung.ofu' '-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Sum of All even numbers till 20 = 110
PS D:\Prasad\Cpp_prgm\Assi_04>
```

7.WAP for finding sum of all odd numbers till 20.

Code:--

```
#include<iostream>
using namespace std;
void addOddNumbers()
{
    int sum = 0;
    for(int i=1; i<=20; i++)
    {
        if(i%2!=0)
            sum = sum + i;
    }
    cout<<"Sum of All Odd Numbers till 20 = "<<sum;
}
int main()
{
    addOddNumbers();
    return 0;
}
```

Output:--



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-ddtr0dax.43o' '--stdout=Microsoft-MIEngine-Out-a5ivi3jv.fbi' '--stderr=Microsoft-MIEngine-Error-iq0qnjn3.3mh' '--pid=Microsoft-MIEngine-Pid-45vcvzzn.3nv' '-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Sum of All Odd Numbers till 20 = 100
PS D:\Prasad\Cpp_prgm\Assi_04>
```

8.WAP for printing multiplication table of a number. For eg. Display should be “ 2 X 1 = 2”.

Code:--

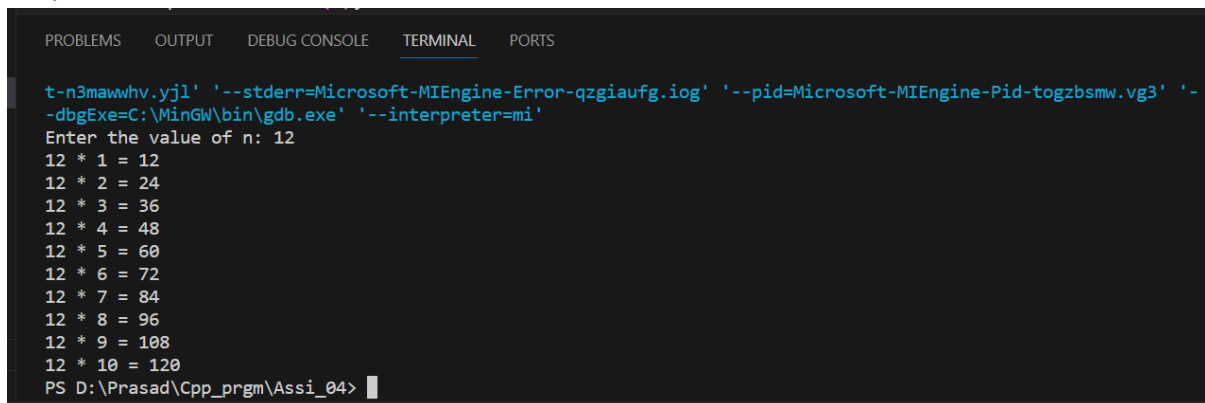
```
#include<iostream>
using namespace std;
void multiplicationTable(int n)
{
    for(int i=1; i<=10; i++)
    {
        cout<<n<<" * "<<i<<" = "<<(n*i)<<endl;
    }
}
int main()
```

```

{
int n;
cout<<"Enter the value of n: ";
cin>>n;
multiplicationTable(n);
return 0;
}

```

Output:--



```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
t-n3mawwhv.yjl' '--stderr=Microsoft-MIEngine-Error-qzgiau fg.iog' '--pid=Microsoft-MIEngine-Pid-togzbsmw.vg3' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter the value of n: 12
12 * 1 = 12
12 * 2 = 24
12 * 3 = 36
12 * 4 = 48
12 * 5 = 60
12 * 6 = 72
12 * 7 = 84
12 * 8 = 96
12 * 9 = 108
12 * 10 = 120
PS D:\Prasad\Cpp_prgm\Assi_04>

```

9.WAP to calculate factorial of a number.

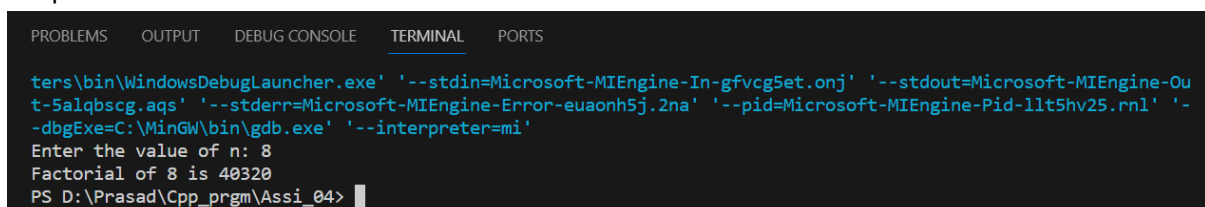
Code:--

```

#include<iostream>
using namespace std;
void fact(int n)
{
int fact = 1;
for(int i=1; i<=n; i++)
{
fact = fact * i;
}
cout<<"Factorial of "<<n<<" is "<<fact;
}
int main()
{
int n;
cout<<"Enter the value of n: ";
cin>>n;
fact(n);
return 0;
}

```

Output:--



```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-gfvcg5et.onj' '--stdout=Microsoft-MIEngine-Ou
t-5alqbscg.aqs' '--stderr=Microsoft-MIEngine-Error-euaonh5j.2na' '--pid=Microsoft-MIEngine-Pid-11t5hv25.rn1' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter the value of n: 8
Factorial of 8 is 40320
PS D:\Prasad\Cpp_prgm\Assi_04>

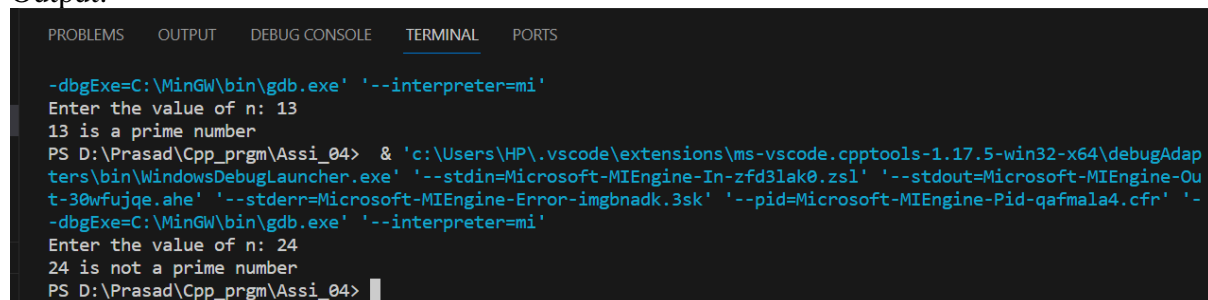
```

10.WAP to check whether a number is prime or not.

Code:--

```
#include<iostream>
using namespace std;
void checkPrime(int n)
{
    bool flag = true;
    if (n == 0 || n == 1)
    {
        flag = false;
    }
    for (int i = 2; i <= n/2; ++i)
    {
        if (n % i == 0) {
            flag = false;
            break;
        }
    }
    if (flag)
        cout << n << " is a prime number";
    else
        cout << n << " is not a prime number";
}
int main()
{
    int n;
    cout<<"Enter the value of n: ";
    cin>>n;
    checkPrime(n);
    return 0;
}
```

Output:--



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter the value of n: 13
13 is a prime number
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-zfd3lak0.zsl' '--stdout=Microsoft-MIEngine-Ou
t-30wfujqe.ahe' '--stderr=Microsoft-MIEngine-Error-imgbnadk.3sk' '--pid=Microsoft-MIEngine-Pid-qafmala4.cfr' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter the value of n: 24
24 is not a prime number
PS D:\Prasad\Cpp_prgm\Assi_04> 
```

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

Code:--

```
#include<iostream>
using namespace std;
void digitAndSum(int n)
```

```

{
int sum=0;
while(n!=0)
{
int last_digit = n%10;
cout<<last_digit<<endl;
n = n/10;
sum = sum + last_digit;
}
cout<<"Sum of digits = "<<sum;
}
int main()
{
int n;
cout<<"Enter a number: ";
cin>>n;
digitAndSum(n);
return 0;
}

```

Output:--

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter a number: 240902
2
4
0
9
0
2
Sum of digits = 17
PS D:\Prasad\Cpp_prgm\Assi_04>

```

12.WAP to print reverse of a number.

Code:--

```

#include<iostream>
using namespace std;
void reverseNumber(int n)
{
int rev=0;
while(n!=0)
{
int last_digit = n % 10;
rev = rev*10 + last_digit;
n = n/10;
}
cout<<"Reverse of a number = "<<rev;
}

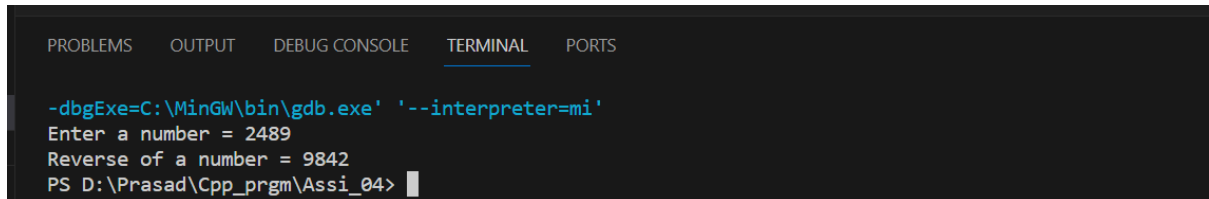
```

```

int main()
{
    int n;
    cout<<"Enter a number = ";
    cin>>n;
    reverseNumber(n);
    return 0;
}

```

Output:--



```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter a number = 2489
Reverse of a number = 9842
PS D:\Prasad\Cpp_prgm\Assi_04>

```

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

Code:--

```

#include<iostream>
using namespace std;
void checkArmstrong(int n)
{
    int temp, sum=0;
    temp = n;
    while(n!=0)
    {
        int r = n % 10;
        sum = sum + (r*r*r);
        n = n/10;
    }
    if(temp == sum)
        cout<<temp<<" is a Armstrong Number";
    else
        cout<<temp<<" is not a Armstrong Number";
}
int main()
{
    int n;
    cout<<"Enter a number: ";
    cin>>n;
    checkArmstrong(n);
    return 0;
}

```



Output:--

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
Enter a number: 371
371 is a Armstrong Number
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-5xm0bi01.11i' '--stdout=Microsoft-MIEngine-Ou
t-bfllnqfb.f50' '--stderr=Microsoft-MIEngine-Error-zd0sz2bq.ydh' '--pid=Microsoft-MIEngine-Pid-2afloxm1.dxd' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter a number: 249
249 is not a Armstrong Number
PS D:\Prasad\Cpp_prgm\Assi_04> █
```

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

Code:--

```
#include<iostream>
using namespace std;
void printFibonacciSeries(int n)
{
    int n1 = 0;
    int n2 = 1;
    cout<<n1<<" " <<n2;
    for (int i = 2; i < n; i++)
    {
        int sum = n1 + n2;
        cout<<" " <<sum;
        n1 = n2;
        n2 = sum;
    }
}
int main()
{
    int count;
    cout<<"Enter a number to get fibonacci series = ";
    cin>>count;
    printFibonacciSeries(count);
    return 0;
}
```

Output:--

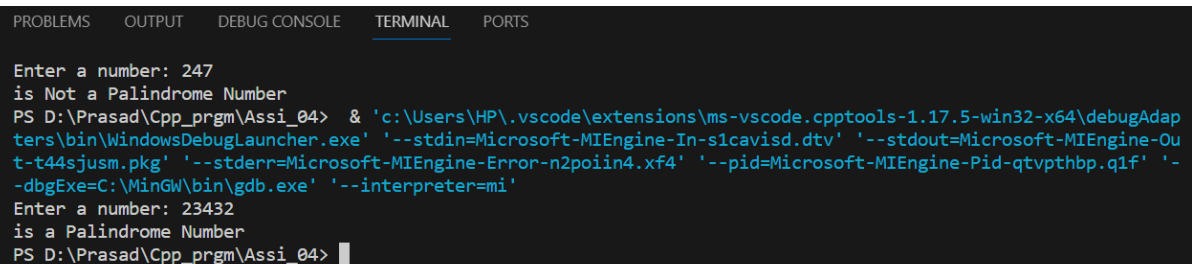
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-zj15nciv.0vw' '--stdout=Microsoft-MIEngine-Ou
t-kymodes.zas' '--stderr=Microsoft-MIEngine-Error-xhaf5un4.bvu' '--pid=Microsoft-MIEngine-Pid-vx0p3iiu.kem' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter a number to get fibonacci series = 9
0 1 1 2 3 5 8 13 21
PS D:\Prasad\Cpp_prgm\Assi_04> █
```

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

Code:--

```
#include<iostream>
using namespace std;
void checkPalindrome(int n)
{
    int rev=0;
    int original = n;
    while(n!=0)
    {
        int last_digit = n % 10;
        rev = rev*10 + last_digit;
        n = n/10;
    }
    if(rev == original)
        cout<<"is a Palindrome Number";
    else
        cout<<"is Not a Palindrome Number";
}
int main()
{
    int n;
    cout<<"Enter a number: ";
    cin>>n;
    checkPalindrome(n);
    return 0;
}
```

Output:--



The screenshot shows a terminal window with tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS. The TERMINAL tab is active. The program prompts for a number. In the first run, the user enters 247, and the program outputs "is Not a Palindrome Number". In the second run, the user enters 23432, and the program outputs "is a Palindrome Number". The terminal also shows the command prompt path: PS D:\Prasad\Cpp\_prgm\Assi\_04>.

```
Enter a number: 247
is Not a Palindrome Number
PS D:\Prasad\Cpp_prgm\Assi_04> & 'c:\Users\HP\.vscode\extensions\ms-vscode.cpptools-1.17.5-win32-x64\debugAdap
ters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-slcavisd.dtv' '--stdout=Microsoft-MIEngine-Ou
t-t44sjusm.pkg' '--stderr=Microsoft-MIEngine-Error-n2poiin4.xf4' '--pid=Microsoft-MIEngine-Pid-qtvpthbp.q1f' '-
-dbgExe=C:\MinGW\bin\gdb.exe' '--interpreter=mi'
Enter a number: 23432
is a Palindrome Number
PS D:\Prasad\Cpp_prgm\Assi_04> 
```