

UNIT 1_EASY

1) Odd or Even

The screenshot shows the VS Code interface with the following details:

- Explorer View:** Shows a file tree with several C++ files: .vscode, practice.cpp, practice5.cpp, program, program.cpp, program1.cpp, program2.cpp, program3.cpp, program4.cpp, program4.cpp, student.cpp, tempCodeRunnerFile.cpp. The file "program.cpp" is currently selected.
- Code Editor:** Displays the following C++ code:

```
#include<iostream>
using namespace std;
int main()
{
    int a;
    cout<<"Enter the value of a:";
    cin>>a;
    if(a%2==0)
    {
        cout<<"Its is Even";
    }
    else
        cout<<"Its Odd";
}
```
- Terminal:** Shows the command line output of running the program:

```
cd "/Users/guttichaitanya/vscode/" && g++ program.cpp && ./program
guttichaitanya@Gutti-MacBook-Air vscode % cd "/Users/guttichaitanya/vscode/" && g++ program.cpp && ./program
Enter the value of a:75.5
Its Odd
```
- Suggested Actions:** A sidebar on the right suggests "Build Workspace" and "Show Config".

2) Palindrome

The screenshot shows a web-based code editor with the following details:

- Code Editor:** Displays the following C++ code:

```
#include<iostream>
using namespace std;
int main()
{
    int n;
    cout<<"Enter the value of n:";
    cin>>n;
    int org=n;
    int rev=0;
    int digit;
    while (n>0)
    {
        digit=n%10;
        rev=(rev*10)+digit;
        n=n/10;
    }
    if (org==rev)
    {
        cout<<"Its is Palindrome";
    }
    else
        cout<<"Its is not Palindrome";
    return 0;
}
```
- Output:** Shows the execution results:

```
Enter the value of n:121
Its is Palindrome
== Code Execution Successful ==
```

3) Prime or Not Prime

The screenshot shows a code editor interface with a toolbar at the top featuring icons for file operations, run, share, and clear. The left sidebar lists supported languages: Python, C, C++, C#, Go, Java, JavaScript, TypeScript, and C/C++. The main area contains the following C++ code:

```
main.cpp
4 int main()
5 {
6     int n;
7     cout<<"Enter the value of n:";
8     cin>>n;
9     int flag=1;
10    if (n<=1)
11    {
12        flag=0;
13    }
14    for(int i=2;i<n;i++)
15    {
16        if(n%i==0)
17        {
18            flag=0;
19            break;
19
20        }
21        else
22            flag=1;
23    }
24    if (flag==1)
25    {
26        cout<<"Its Prime";
27    }
28    else
```

The output window displays the results of running the code with the input '12'.

Output:
Enter the value of n:12
Its composite
== Code Execution Successful ==

4) To make Capital letters to small Letters

The screenshot shows a code editor interface with a toolbar at the top featuring icons for file operations, run, share, and clear. The left sidebar lists supported languages: Python, C, C++, C#, Go, Java, JavaScript, TypeScript, and C/C++. The main area contains the following C++ code:

```
main.cpp
1 #include <iostream>
2 #include <string>
3 using namespace std;
4
5 int main()
6 {
7     string s;
8     cout << "Enter uppercase string: ";
9     cin >> s;
9
10
11    for (int i = 0; i < s.length(); i++)
12    {
13        if (s[i] >= 'A' && s[i] <= 'Z')
14            s[i] = s[i] + 32;
15    }
16
17    cout << "Lowercase string: " << s;
18    return 0;
19 }
```

The output window displays the results of running the code with the input 'PYTHON'.

Output:
Enter uppercase string: PYTHON
Lowercase string: python
== Code Execution Successful ==

HARD

1) Nth Fibonacci Number using IF-ELSE

The screenshot shows a code editor interface with a sidebar containing file icons for various languages (C++, Python, Java, etc.). The main area displays the following C++ code:

```
main.cpp
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int n;
7     cout << "Enter N: ";
8     cin >> n;
9
10    if (n < 0)
11        cout << "Invalid input";
12    else if (n == 0)
13        cout << 0;
14    else if (n == 1)
15        cout << 1;
16    else
17    {
18        int a = 0, b = 1, c;
19        for (int i = 2; i <= n; i++)
20        {
21            c = a + b;
22            a = b;
23            b = c;
24        }
25        cout << b;
26    }
27 }
```

The output window shows the result of running the code with input '8':

```
Enter N: 8
21
== Code Execution Successful ==
```

2) Set Nth Bit of a Number

The screenshot shows a code editor interface with a sidebar containing file icons for various languages (C++, Python, Java, etc.). The main area displays the following C++ code:

```
main.cpp
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int num, bit;
7     cout << "Enter Number: ";
8     cin >> num;
9     cout << "Enter bit number you wish to set: ";
10    cin >> bit;
11
12    if (num < 0 || bit < 0)
13        cout << "Invalid input";
14    else
15    {
16        int result = num | (1 << bit);
17        cout << "Bit set Successfully\n";
18        cout << "Answer: " << result;
19    }
20    return 0;
21 }
22 }
```

The output window shows the result of running the code with inputs '5' and '4':

```
Enter Number: 5
Enter bit number you wish to set: 4
Bit set Successfully
Answer: 21
== Code Execution Successful ==
```

3) Most Frequent Element in an Array

The screenshot shows a code editor interface with a sidebar containing file icons for Python, C, C++, Java, JavaScript, and Go. The main area displays the following C++ code in a file named main.cpp:

```
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int n;
7     cout << "Enter size of the array: ";
8     cin >> n;
9
10    if (n <= 0)
11    {
12        cout << "Invalid size";
13        return 0;
14    }
15
16    int arr[100];
17    for (int i = 0; i < n; i++)
18    {
19        cout << "Enter Element " << i + 1 << ": ";
20        cin >> arr[i];
21    }
22
23    int maxCount = 0, element;
24    for (int i = 0; i < n; i++)
25    {
```

The output window shows the execution results:

```
Enter size of the array: 3
Enter Element 1: 2
Enter Element 2: 3
Enter Element 3: 4
Most occurred number: 2
== Code Execution Successful ==
```

4) Power of a Number

The screenshot shows a code editor interface with a sidebar containing file icons for Python, C, C++, Java, JavaScript, and Go. The main area displays the following C++ code in a file named main.cpp:

```
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int base, exp;
7     long long result = 1;
8
9     cout << "Input the base: ";
10    cin >> base;
11    cout << "Input the exponent: ";
12    cin >> exp;
13
14    if (exp < 0)
15    {
16        cout << "Negative exponent not supported";
17        return 0;
18    }
19
20    for (int i = 1; i <= exp; i++)
21        result = result * base;
22
23    cout << result;
24    return 0;
25 }
```

The output window shows the execution results:

```
Input the base: 5
Input the exponent: 3
125
== Code Execution Successful ==
```

MEDIUM

1) Square Root using IF-ELSE

The screenshot shows a code editor interface with a toolbar at the top. On the left, there is a file navigation sidebar with icons for C++, C, Java, Python, JavaScript, and Go. The main area contains the following C++ code:

```
main.cpp
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int n;
7     cout << "Enter number: ";
8     cin >> n;
9
10    if (n < 0)
11        cout << "Invalid input";
12    else
13    {
14        for (int i = 1; i * i <= n; i++)
15        {
16            if (i * i == n)
17            {
18                cout << i;
19                break;
20            }
21        }
22    }
23    return 0;
24 }
```

The output window on the right shows the results of running the code with the input 1296, displaying the output 36 and the message "Code Execution Successful".

2) Perfect Number using IF-ELSE

The screenshot shows a code editor interface with a toolbar at the top. On the left, there is a file navigation sidebar with icons for C++, C, Java, Python, JavaScript, and Go. The main area contains the following C++ code:

```
main.cpp
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int n, sum = 0;
7     cout << "Enter number: ";
8     cin >> n;
9
10    if (n <= 0)
11        cout << "Invalid input";
12    else
13    {
14        for (int i = 1; i < n; i++)
15        {
16            if (n % i == 0)
17                sum += i;
18        }
19
20        if (sum == n)
21            cout << n << " is a perfect number";
22        else
23            cout << n << " is not a perfect number";
24    }
25    return 0;
26 }
```

The output window on the right shows the results of running the code with the input 123, displaying the output "123 is not a perfect number" and the message "Code Execution Successful".

3) Smallest Missing Element (WHILE loop)

The screenshot shows a code editor interface with a toolbar at the top. On the left, there is a file selector with 'main.cpp' selected. The main area contains the following C++ code:

```
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int arr[] = {0, 1, 2, 3, 5, 6, 7};
7     int n = 7;
8     int i = 0;
9
10    while (i < n)
11    {
12        if (arr[i] != i)
13        {
14            cout << i;
15            break;
16        }
17        i++;
18    }
19    return 0;
20 }
21
```

On the right, under the 'Output' tab, the results of the execution are displayed:

4
==== Code Execution Successful ===

4) Sum of N numbers using FOR loop

The screenshot shows a code editor interface with a toolbar at the top. On the left, there is a file selector with 'main.cpp' selected. The main area contains the following C++ code:

```
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int n, sum = 0, num;
7     cout << "Enter n: ";
8     cin >> n;
9
10    if (n <= 0)
11        cout << "Invalid input";
12    else
13    {
14        for (int i = 1; i <= n; i++)
15        {
16            cin >> num;
17            sum += num;
18        }
19        cout << "Sum: " << sum;
20    }
21    return 0;
22 }
23
```

On the right, under the 'Output' tab, the results of the execution are displayed:

Enter n: 5
1 2 3 4 5
Sum: 15
==== Code Execution Successful ===