

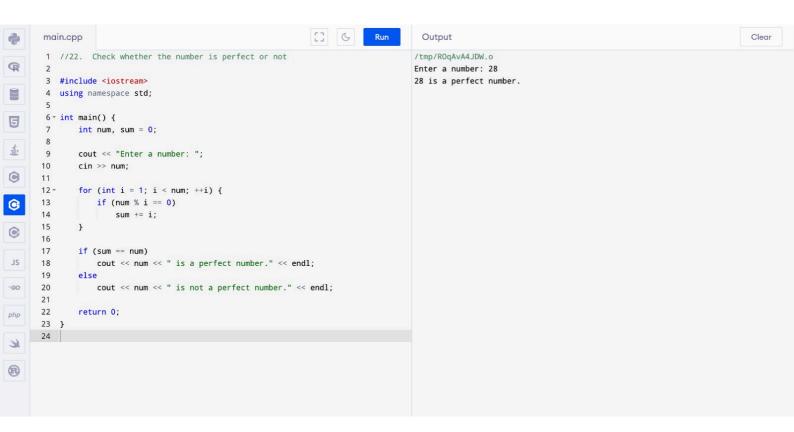
```
C3 G Run
                                                                                     Output
                                                                                                                                                        Clear
       main.cpp
        1 #include <iostream>
                                                                                    /tmp/E4jYUutBQS.o
R
                                                                                    Enter the number: 5 0 1 1 2 3 5
        2 using namespace std;
        3 int main()
        4 - {
        5
               int n, i, f1, f2, f3;
              cout << "Enter the number: ";</pre>
9
       7
              cin >> n;
              f1 = 0;
        8
        9
              f2 = 1;
              cout << f1 << " " << f2 << " ";
       10
0
              for(i = 1; i < n; i++)
       11
       12 *
                  f3 = f1 + f2;
G
       13
                  cout << f3 << " ";
                  f1 = f2;
f2 = f3;
       15
0
       16
       17
 JS
       18
              return 0;
       19 }
-GO
php
R
(B)
```

```
[] G Run
      main.cpp
                                                                                 Output
                                                                                                                                                  Clear
4
       1 #include <iostream>
                                                                                /tmp/E4jYUutBQS.o
R
       2 using namespace std;
                                                                                Enter a number: 45
                                                                                45 is not a prime number.
4 * int main() {
             int n;
             bool isPrime = true;
5
            cout << "Enter a number: ";</pre>
       8
1
       9
            cin >> n;
      10
0
      11 -
             for (int i = 2; i <= n / 2; ++i) {
      12 -
              if (n % i == 0) {
                    isPrime = false;
•
      13
      14
                    break;
      15
0
            }
      16
      17
JS
            if (isPrime)
      18
              cout << n << " is a prime number." << endl;</pre>
      19
      20
                 cout << n << " is not a prime number." << endl;</pre>
      21
      22
php
      23
             return 0;
      24 }
      25
8
```

```
[] G Run
                                                                                      Output
       main.cpp
                                                                                                                                                          Clear
        #1nclude <lostream>
                                                                                     /tmp/E4jYUutBQS.o
       2 #include <string>
R
                                                                                     Enter a string: eye
       3 using namespace std;
                                                                                     Palindrome
5 * int main() {
       6
              string str;
5
              cout << "Enter a string: ";</pre>
              getline(cin, str);
1
             int start = 0;
int end = str.length() - 1;
       10
       11
0
       12
             bool isPalindrome = true;
       13
©
       14 *
              while (start < end) {</pre>
                 if (str[start] != str[end]) {
       15 +
0
                     isPalindrome = false;
       16
       17
                     break;
       18
                 }
JS
       19
                 start++;
       20
                  end--;
       21
       22
php
              if (isPalindrome)
       23
                 cout << "Palindrome" << endl;</pre>
       24
       25
       26
                  cout << "Not a palindrome" << endl;</pre>
      27
8
              return 0;
      28
       29 }
     30
```

```
[] G Run
                                                                                   Output
                                                                                                                                                      Clear
       main.cpp
4
       1 #include <iostream>
                                                                                   /tmp/E4jYUutBQS.o
R
                                                                                   Enter a number: 56
        2 using namespace std;
                                                                                   Sum of digits: 11
4 - int main() {
              int n, sum = 0;
5
              cout << "Enter a number: ";</pre>
              cin >> n;
        8
些
       9
              while (n > 0) {
   sum += n % 10;
       10 +
0
       11
       12
                 n /= 10;
©
       13
       14
              cout << "Sum of digits: " << sum << endl;</pre>
       15
(3)
       16
              return 0;
       17
 JS
       18 }
       19
-GO
php
R
B
```

```
C Run
                                                                                                                                                       Clear
       main.cpp
                                                                                    Output
       1 //21. GCD of two numbers using do-while loop
                                                                                   /tmp/ROqAvA4JDW.o
R
                                                                                   Enter two numbers: 4 6
       3 #include <iostream>
                                                                                   GCD: 2
4 using namespace std;
       6 - int main() {
5
             int num1, num2;
雪
              cout << "Enter two numbers: ";
cin >> num1 >> num2;
       9
       10
0
       11
       12 -
              do {
©
                if (num1 > num2)
       13
       14
                    num1 -= num2;
                 else
       15
0
       16
                     num2 -= num1;
              } while (num1 != num2);
       17
 JS
       18
              cout << "GCD: " << num1 << endl;</pre>
       19
       20
       21
              return 0;
     22 }
php
       23
B
```



```
[] G Run
       main.cpp
                                                                                        Output
                                                                                                                                                             Clear
4
        1 //23. Armstrong number
                                                                                      /tmp/ROqAvA4JDW.o
R
                                                                                      Enter an integer: 456
        3 #include <iostream>
                                                                                      456 is not an Armstrong number.
        4 #include <cmath>
        5 using namespace std;
        6 * int main() {
9
              int num, originalNum, remainder, n = 0, result = 0;
               cout << "Enter an integer: ";</pre>
        8
              cin >> num;
        9
       10
               originalNum = num;
0
              while (originalNum != 0) {
       11 -
                   originalNum /= 10;
       12
•
       13
                   ++n;
       14
               originalNum = num;
       15
0
               while (originalNum != 0) {
       16 -
       17
                  remainder = originalNum % 10;
                   result += pow(remainder, n);
       18
                  originalNum /= 10;
       19
       20
       21
              if (result == num)
                  cout << num << " is an Armstrong number." << endl;</pre>
       22
       23
       24
                cout << num << " is not an Armstrong number." << endl;</pre>
       25
               return 0;
       26 }
(B)
       27
                                                                                                                                               GarageBand
```

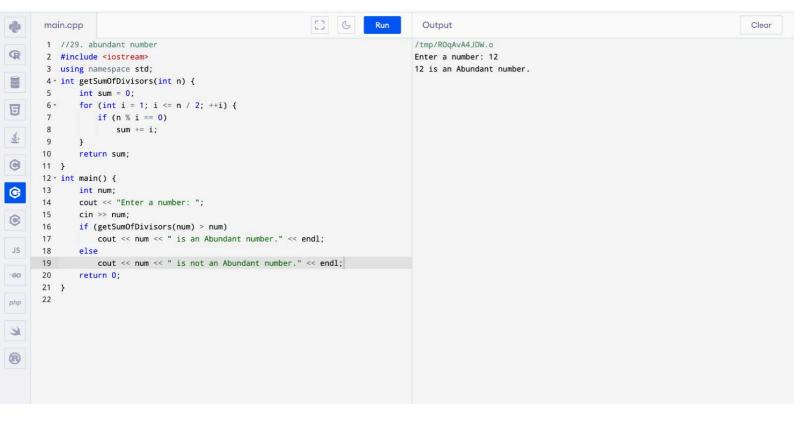
```
[] G Run
                                                                                                                                                         Clear
       main.cpp
                                                                                     Output
       1 //25.HAPPY NUMBER
                                                                                    /tmp/ROqAvA4JDW.o
R
        2 #include <iostream>
                                                                                    Enter an integer: 567
       3 #include <unordered_set>
                                                                                    567 is not a Harshad number.
       4 using namespace std;
       5 int getSumOfSquares(int n) {
             int sum = 0;
9
              while (n > 0) {
       8
              int digit = n % 10;
雪
                 sum += digit * digit;
       9
                  n /= 10;
       10
0
       11
       12
              return sum;
•
       13 }
       14 bool isHappy(int n) {
              unordered_set<int> visited;
0
              while (n != 1 && visited.find(n) == visited.end()) {
       16 -
                  visited.insert(n);
       17
JS
       18
                  n = getSumOfSquares(n);
       19
~GO
       20
              return n == 1;
       21 }
       22 * int main() {
php
       23
              cout << "Enter a number: ";</pre>
       24
              cin >> num;
       25
       26
              if (isHappy(num))
(B)
       27
                 cout << num << " is a Happy number." << endl;</pre>
       28
               cout << num << " is not a Happy number." << endl;</pre>
      29
```

```
[] 6
                                                                                          Output
                                                                                                                                                                  Clear
        1 //25.STRONG NUMBER
                                                                                         /tmp/ROqAvA4JDW.o
R
                                                                                         Enter an integer: 145
        2 #include <iostream>
        3 using namespace std;
                                                                                         145 is a Strong number.
4 · int factorial(int n) {
              if (n == 0 || n == 1)
        6
                   return 1;
9
        7
               else
                  return n * factorial(n - 1);
        8
        9 }
       10 * int main() {
0
              int num, originalNum, sum = 0;
cout << "Enter an integer: ";</pre>
       11
       12
•
              cin >> num;
       14
               originalNum = num;
               while (num > 0) {
       15 -
0
       16
                   sum += factorial(num % 10);
        17
                   num /= 10;
       18
               if (sum == originalNum)
       19
                   cout << originalNum << " is a Strong number." << endl;</pre>
       20
       21
       22
                 cout << originalNum << " is not a Strong number." << endl;</pre>
       23
               return 0;
       24 }
       25
(B)
```

```
[] G Run
                                                                                                                                                          Clear
       main.cpp
                                                                                      Output
       1 //25.happy number
                                                                                     /tmp/ROqAvA4JDW.o
R
        2 #include <iostream>
                                                                                     Enter a number: 34
       3 #include <unordered_set>
                                                                                     34 is not a Happy number.
       4 using namespace std;
        6 * int getSumOfSquares(int n) {
5
              int sum = 0;
              while (n > 0) {
       8 -
                int digit = n % 10;
       9
                  sum += digit * digit;
       10
0
                 n /= 10;
       11
       12
              }
(3
       13
              return sum;
       14 }
       15 * bool isHappy(int n) {
0
              unordered_set<int> visited;
       16
       17 -
              while (n != 1 && visited.find(n) == visited.end()) {
JS
       18
                  visited.insert(n);
       19
                  n = getSumOfSquares(n);
       20
-GO
              }
              return n == 1;
       21
       22 }
php
      23 - int main() {
              int num;
cout << "Enter a number: ";</pre>
      24
R
       25
              cin >> num;
       26
(B)
       27
              if (isHappy(num))
                  cout << num << " is a Happy number." << endl;</pre>
       28
       29
                  cout << num << " is not a Hanny number " << end).
      30
```

```
[] G Run
        main.cpp
                                                                                         Output
                                                                                                                                                                 Clear
                                                                                        /tmp/ROqAvA4JDW.o
        1 //27.buzz number
R
        2 #include <iostream>
                                                                                        Enter a number: 45
        3 using namespace std;
                                                                                        45 is not a Buzz number.
5 * int main() {
        6
              int num;
9
             cout << "Enter a number: ";</pre>
1
        9
              cin >> num;
        10
0
             if (num % 7 == 0 || num % 10 == 7)
    cout << num << " is a Buzz number." << endl;</pre>
       11
        12
Ġ
       13
                   cout << num << " is not a Buzz number." << endl;</pre>
       14
       15
0
       16
     17 }
php
(3)
```

```
[] [
                                                                                  Output
                                                                                                                                                    Clear
       1 //28.neon number
                                                                                 /tmp/ROqAvA4JDW.o
R
       2 #include <iostream>
                                                                                 Enter a number: 9
       3 using namespace std;
                                                                                 9 is a Neon number.
5 int main() {
             int num, square, sum = 0;
B
            cout << "Enter a number: ";</pre>
       8
       9
             cin >> num;
       10
0
            square = num * num;
       11
       12
•
       13 -
            while (square > 0) {
               sum += square % 10;
       14
                 square /= 10;
       15
0
       16
       17
       18
             if (sum == num)
                 cout << num << " is a Neon number." << endl;</pre>
       19
       20
       21
                 cout << num << " is not a Neon number." << endl;</pre>
      22
      23
              return 0;
      24 }
     25
(8)
```



```
[] G Run
                                                                                   Output
                                                                                                                                                   Clear
       main.cpp
       1 //30.Narcissistic number
                                                                                  /tmp/ROqAvA4JDW.o
R
                                                                                  Enter a number: 56
       2 #include <iostream>
       3 #include <cmath>
                                                                                 56 is not a Narcissistic number.
       4 using namespace std;
       5 * int countDigits(int n) {
            int count = 0;
9
             while (n > 0) {
       7 -
              n /= 10;
       8
1
       9
                 ++count;
       10
             }
0
              return count;
       11
       12 }
(3
       13 - bool isNarcissistic(int n) {
           int num = n;
            int power = countDigits(n);
int sum = 0;
       15
0
       16
       17 -
            while (n > 0) {
       18
                 int digit = n % 10;
                 sum += pow(digit, power);
       19
            n /= 10;
}
      20
      21
      22
              return sum == num;
      23 }
      24 - int main() {
R
      25
           int num;
      26
              cout << "Enter a number: ";</pre>
(B)
              cin >> num;
      27
            if (isNarcissistic(num))
      28
             cout << num << " is a Narcissistic number." << endl;
      29
```