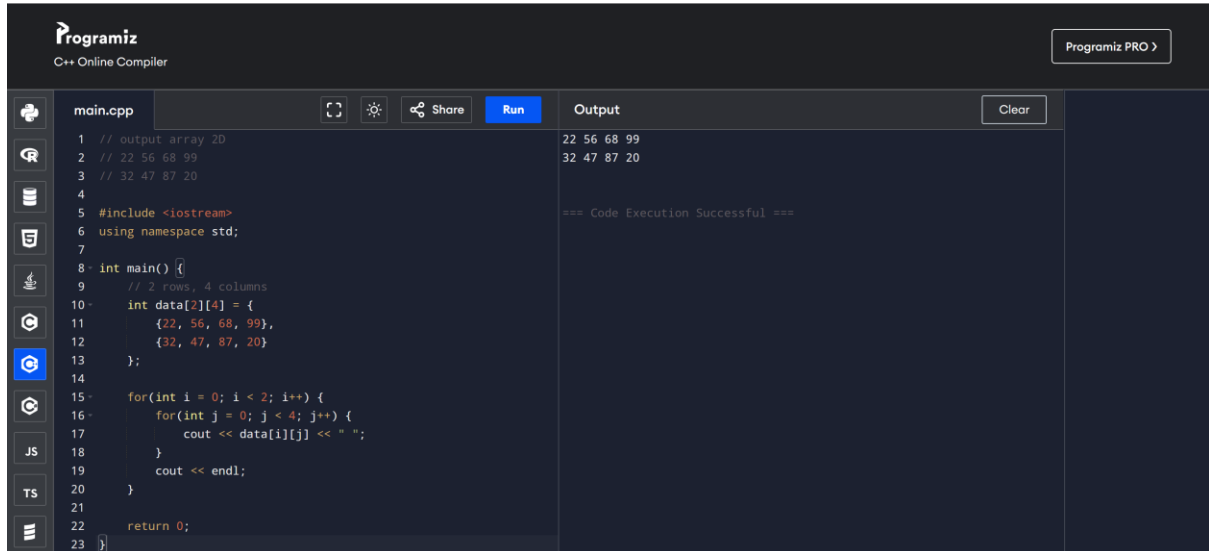


Bismillahirrahmanirahim

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1. Array 2D



The screenshot shows the Programiz C++ Online Compiler interface. The code in `main.cpp` defines a 2D array `data` with 2 rows and 4 columns. The first row contains the values 22, 56, 68, and 99. The second row contains the values 32, 47, 87, and 20. The program uses nested loops to iterate through the array and print each element followed by a space. The output is displayed in the 'Output' panel, showing the values of the array in two rows. The code execution is successful.

```
1 // output array 2D
2 // 22 56 68 99
3 // 32 47 87 20
4
5 #include <iostream>
6 using namespace std;
7
8 int main() {
9     // 2 rows, 4 columns
10    int data[2][4] = {
11        {22, 56, 68, 99},
12        {32, 47, 87, 20}
13    };
14
15    for(int i = 0; i < 2; i++) {
16        for(int j = 0; j < 4; j++) {
17            cout << data[i][j] << " ";
18        }
19        cout << endl;
20    }
21
22    return 0;
23 }
```

Output

```
22 56 68 99
32 47 87 20

=== Code Execution Successful ===
```

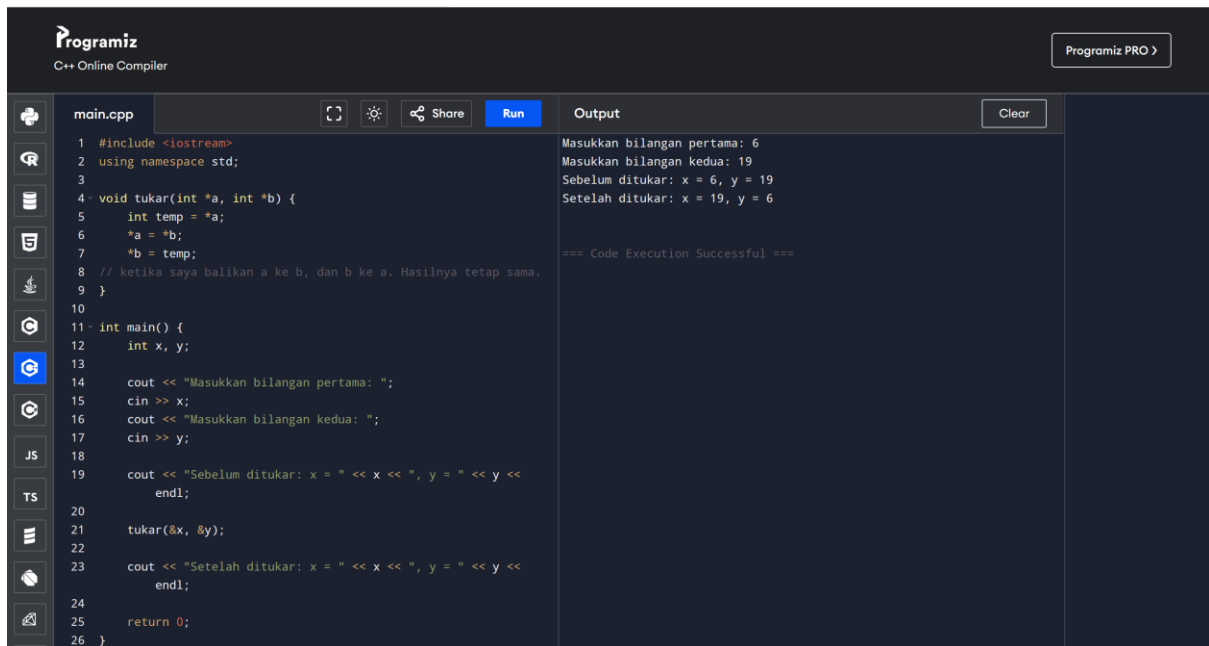
2. overloading



The screenshot shows a code editor with a dark background. The code demonstrates function overloading with two functions named `proses`. The first function takes two integers as arguments and returns their sum. The second function takes two floats as arguments and returns their difference. The `main` function calls `proses(4,5)` and prints the result. Below the code, there are two lines of Indonesian commentary explaining that the result is 9 regardless of the data type used, and that changing the `main` function to use floats would cause an error.

```
1 #include <iostream>
2
3 using namespace std;
4
5 int proses (int a, int b) {
6     return (a+b);
7 }
8
9 float proses (float a, float b) {
10    return (a-b);
11 }
12
13 int main() {
14    cout << "Hasil : " << proses(4,5);
15    return 0;
16 }
17
18 // ketika saya balik float di atas dan int di bawah hasilnya tetap sama 9
19 // ku kira dari main function ternyata bukan juga, ketika main function diubah ke float jadi error
```

3. Pointer



The screenshot shows the Programiz C++ Online Compiler interface. The code in `main.cpp` defines a `tukar` function that swaps two integers using a temporary variable. The `main` function prompts the user to enter two numbers, 6 and 19, and then calls the `tukar` function. The output shows the numbers being swapped successfully.

```
1 #include <iostream>
2 using namespace std;
3
4 void tukar(int *a, int *b) {
5     int temp = *a;
6     *a = *b;
7     *b = temp;
8     // ketika saya balikan a ke b, dan b ke a. Hasilnya tetap sama.
9 }
10
11 int main() {
12     int x, y;
13
14     cout << "Masukkan bilangan pertama: ";
15     cin >> x;
16     cout << "Masukkan bilangan kedua: ";
17     cin >> y;
18
19     cout << "Sebelum ditukar: x = " << x << ", y = " << y << endl;
20
21     tukar(&x, &y);
22
23     cout << "Setelah ditukar: x = " << x << ", y = " << y << endl;
24
25     return 0;
26 }
```

Output:

```
Masukkan bilangan pertama: 6
Masukkan bilangan kedua: 19
Sebelum ditukar: x = 6, y = 19
Setelah ditukar: x = 19, y = 6

=== Code Execution Successful ===
```

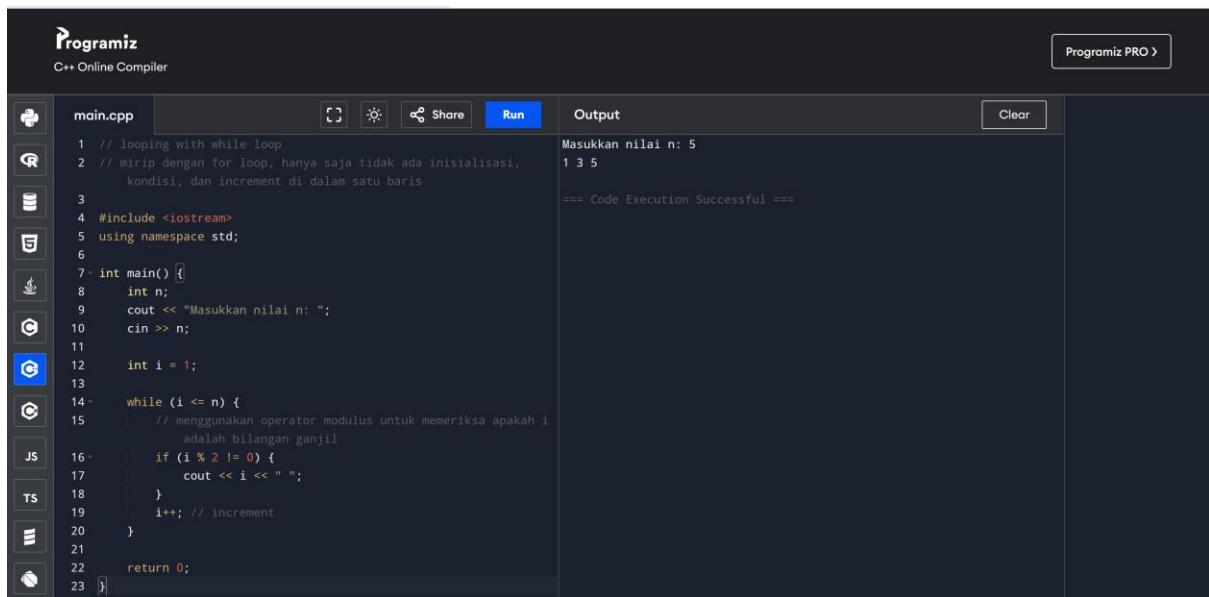
4. For-loop



The screenshot shows a code editor with a C++ program that calculates the sum of numbers from 1 to `n` using a `for` loop. The program prompts the user to enter a number `n`, and then calculates the sum of all integers from 1 to `n`. The output shows the sum for `n=5`, which is 15.

```
1 // Looping with for Loop
2 #include <iostream>
3 using namespace std;
4 int main() {
5     int n;
6     cout << "Masukkan jumlah bilangan: ";
7     cin >> n;
8
9     int sum = 0;
10    for (int i = 1; i <= n; i++) {
11        sum += i;
12    }
13
14    cout << "Jumlah dari 1 sampai " << n << " adalah: " << sum << endl;
15
16    return 0;
17 }
18
19 // for Loop dijalankan perulangannya dulu hingga kondisi terpenuhi
20
21 // | i | sum sebelum | sum += i | sum sesudah |
22 // | - | ----- | ----- | ----- |
23 // | 1 | 0          | 0 + 1   | 1        |
24 // | 2 | 1          | 1 + 2   | 3        |
25 // | 3 | 3          | 3 + 3   | 6        |
26 // | 4 | 6          | 6 + 4   | 10       |
27 // | 5 | 10         | 10 + 5  | 15       |
```

5. While-loop



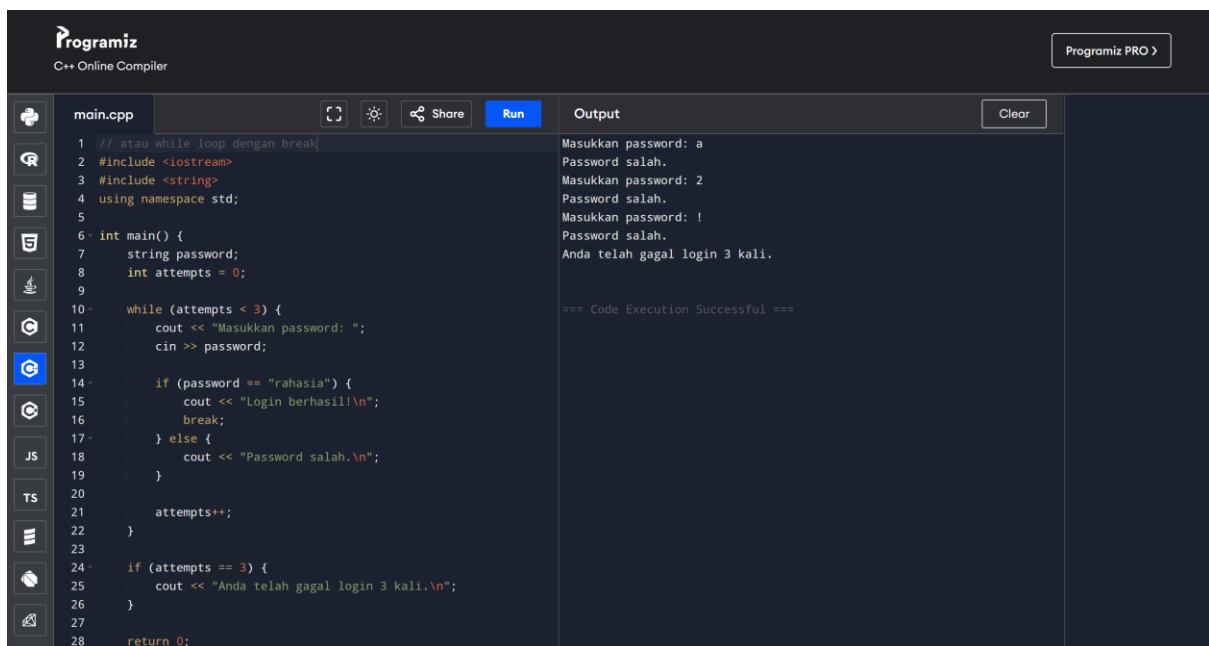
The screenshot shows the Programiz C++ Online Compiler interface. The code in `main.cpp` is as follows:

```
1 // looping with while loop
2 // mirip dengan for loop, hanya saja tidak ada inisialisasi,
   kondisi, dan increment di dalam satu baris
3
4 #include <iostream>
5 using namespace std;
6
7 int main() {
8     int n;
9     cout << "Masukkan nilai n: ";
10    cin >> n;
11
12    int i = 1;
13
14    while (i <= n) {
15        // menggunakan operator modulus untuk memeriksa apakah i
           adalah bilangan ganjil
16        if (i % 2 != 0) {
17            cout << i << " ";
18        }
19        i++; // increment
20    }
21
22    return 0;
23 }
```

The output of the program is:

```
Masukkan nilai n: 5
1 3 5
=== Code Execution Successful ===
```

6. While-loop with break



The screenshot shows the Programiz C++ Online Compiler interface. The code in `main.cpp` is as follows:

```
1 // atau while loop dengan break
2 #include <iostream>
3 #include <string>
4 using namespace std;
5
6 int main() {
7     string password;
8     int attempts = 0;
9
10    while (attempts < 3) {
11        cout << "Masukkan password: ";
12        cin >> password;
13
14        if (password == "rahasia") {
15            cout << "Login berhasil!\n";
16            break;
17        } else {
18            cout << "Password salah.\n";
19        }
20
21        attempts++;
22    }
23
24    if (attempts == 3) {
25        cout << "Anda telah gagal login 3 kali.\n";
26    }
27
28    return 0;
29 }
```

The output of the program is:

```
Masukkan password: a
Password salah.
Masukkan password: 2
Password salah.
Masukkan password: !
Password salah.
Anda telah gagal login 3 kali.
=== Code Execution Successful ===
```

7. Do-while-loop

```
1 // Looping with do-while Loop
2 // do-while Loop adalah looping yang mengulangi program sekali setelah kondisi terpenuhi
3 // jadi dilakukan dulu satu kali, baru kemudian mengecek kondisi
4
5 #include <iostream>
6 using namespace std;
7
8 int main()
9 {
10     char ulang; // declaration of variable to repeat the program
11     cout << "Program Kategori Umur\n";
12
13     do {
14         int umur;
15         cout << "Masukkan umur: ";
16         cin >> umur;
17
18         if (umur < 12)
19         {
20             cout << "Umur anak" << endl;
21         }
22         else if (umur <= 17)
23         {
24             cout << "Umur remaja" << endl;
25         }
26         else
27         {
28             cout << "Umur bukan anak atau remaja" << endl;
29         }
30
31         cout << "\nApakah ingin mengulangi program? (y/t): ";
32         cin >> ulang;
33
34         if (ulang != 'y' && ulang != 'Y' && ulang != 't' && ulang != 'T') {
35             cout << "Input tidak dikenal. Program berhenti.\n";
36             break;
37         }
38     } while (ulang == 'y' || ulang == 'Y'); // Loop condition to repeat the program
39
40     cout << "\nProgram selesai. Terima kasih!\n";
41     return 0;
42 }
43 }
```

Output

Clear

```
Program Kategori Umur
Masukkan umur: 45
Umur bukan anak atau remaja

Apakah ingin mengulangi program? (y/t): y
Masukkan umur: 13
Umur remaja

Apakah ingin mengulangi program? (y/t): n
Input tidak dikenal. Program berhenti.

Program selesai. Terima kasih!

=== Code Execution Successful ===
```