Bimo Dwi Laksono

A18.2025.00201

Dasar Pemrograman

Kasus 1 Perulangan atau Looping

Notasi Algoritma

```
repeat 5 times
  Output("Hello World")
```

Kode Program

```cpp
#include <iostream>
using namespace std;

int main() {
  for(int i = 1; i <= 5; i++) {
    cout << "Hello World" << endl;
  }
  return 0;
}
```

Kasus 2 - Deret Angka

Notasi Algoritma

```
// Untuk Output 0 1 2 3 4 5 6 7 8 9
Kamus
initial: int

initial = 0
last = 10

repeat
  output(initial)
  initial += 1
until i < last

// Untuk Output 1 2 3 4 5 6 7 8 9 10
Kamus
```

```
initial: int

initial = 1
last = 10

repeat
  output(initial)
  initial += 1
until i <= last
```

Perbedaan kedua kasus deret angka tersebut terletak pada nilai awal looping nya dan kondisi nya yg berbeda. Yg pertama berhenti looping ketika nilai initial nya mencapai kurang dari 10. Yg kedua berhenti looping ketika nilai initial nya mencapai nilai 10.

Kode Program

```cpp
#include <iostream>
using namespace std;

int main() {

  // Kasus 0 ... 9
  for(int i = 0; i < 10; i++) {
    cout << i << " ";
  }

  // Kasus 1 ... 10
  for(int i = 1; i <= 10; i++) {
    cout << i << " ";
  }
  return 0;
}
```

Kasus 2a Modifikasi Deret Angka

Notasi Algoritma

```
Kamus
n: int
a: int

Algoritma
input(n)
input(a)

while a <= n do
  output(a)
```

```
    a++
  endwhile
```

Kode Program

```cpp
#include <iostream>
using namespace std;

int main() {

  int n, a;
  cout << "Input n: ";
  cin >> n;
  cout << "Input a: ";
  cin >> a;

  while (a <= n) {
    cout << a << " ";
    a++;
  }

  return 0;
}
```

Kasus 3 Deret Angka Menurun

Notasi Algoritma

```
// Kasus 10 ... 0
i = 10
j = 0

while i >= j do
  output(i)
  i--
endwhile

// Kasus 9 ... 1
i = 9
j = 1

while i >= j do
  output(i)
  i--
endwhile
```

Kode Program

```cpp
#include <iostream>
using namespace std;

int main() {

  // 10 ... 0
  int i = 10;
  int j = 0

  while (i >= j) {
    cout << i << " ";
    i--;
  }

  // 9 ... 1
  i = 9;
  j = 1;

  while (i >= j) {
    cout << i << " ";
    i--;
  }

  return 0;
}
```

Kasus 3a Modifikasi Deret Angka Menurun

Notasi Algoritma

```
KAMUS
a: int
b: int

ALGORITMA
input(a)
input(b)

while b >= a do
  output(b)
  b--
endwhile
```

Kode Program

```cpp
#include <iostream>
using namespace std;
```

```cpp
int main() {
  int a, b, increment;

  cout << "Input a: ";
  cin >> a;

  cout << "Input b: ";
  cin >> b;

  while (b >= a) {
    cout << b << " ";
    b--
  }


  return 0;
}
```

Kasus 4 Modifikasi Program

Notasi Algoritma

```
KAMUS
a: int
b: int
increment: int

ALGORITMA
input(a)
input(b)
input(increment)

while a <= b do
  output(a)
  a = a - increment
endwhile
```

Kode Program

```cpp
#include <iostream>
using namespace std;

int main() {
  int a, b, increment;

  cout << "Input a: ";
  cin >> a;

  cout << "Input b: ";
```

```cpp
  cin >> b;

  cout << "Input increment value: ";
  cin >> increment;

  while (a <= b) {
    cout << b << " ";
    a += increment;
  }


  return 0;
}
```

```cpp
  cin >> b;

  cout << "Input increment value: ";
  cin >> increment;

  while (a <= b) {
    cout << b << " ";
```