Prokom-1:

Programming, Algorithm, Flowchart, Pseudocode, C language

Overview

- C Vs C++
- Syntax
- Decision Tree
- Variable
- Statements
- Loop

Algorithm

- Algoritma adalah **langkah-langkah logis** penyelesaian suatu masalah
- Input **>>** ALGORITMA **>>** output
- Algoritma bisa berupa:
  - Flowchart
  - Pseudo code

C Vs C++

C	C++
Structural/Procedural	Object Oriented
Standard Library (stdio)	iostream
Simplicity	Complexity
User defined, struct	Template, Class, etc

Syntax

```
1 #include <stdio.h>
2 Int main (void)
3 {
4     printf(“hello world”);
5 }
```

Hello C!

```
1 #include <stdio.h>
2 Int main (void)
3 {
4     printf(“hello world\n”);
5 }
```

Hello, Bagus!

```
1 #include <stdio.h>
2 Int main (void)
3 {
4     char nama[10] = "Bagus";
5     printf("hello, %s\n", nama);
6 }
```

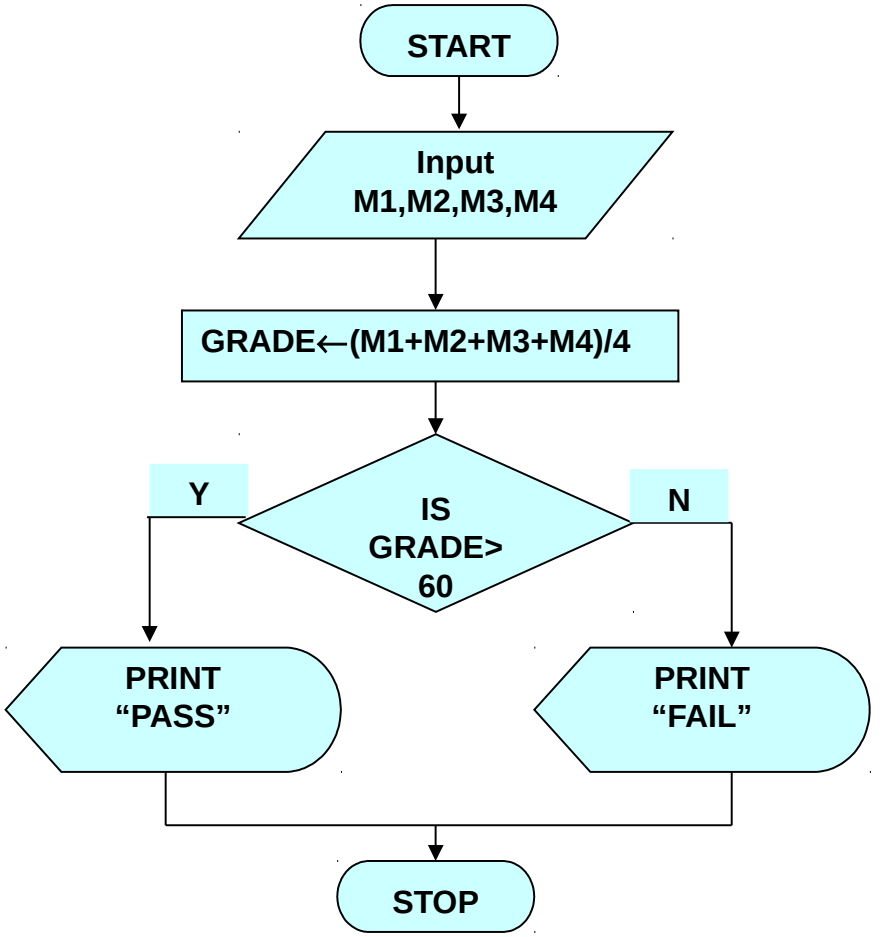
Hello, Bagus!

```
1 #include <stdio.h>
2
3 int main(void)
4 {
5     char nama[10];
6     printf("Masukkan nama anda: ");
7     scanf("%s", nama);
8     printf("hello, %s\n", nama);
9 }
```

Decision Tree: IF .. ELSE

- Jika nila kurang dari 60
  cetak “anda lolos”
- Sebaliknya
  anda “tidak lolos”

```
if (x > 60)
    printf(“Anda Lolos”);
else
    printf(“Anda tidak lolos”);
```



IF ... ELSE IF ... ELSE

```
if (n > 0)
        printf("Anda memasukkan bilangan positif!");
else if (n == 0)
        printf("Anda memasukkan bilangan 0");
else
        printf("Anda memasukkan bilangan negatif!");
```

Format Code & Escape Sequence

- %f
- %i
- %d
- %c
- %lld
- %s

- \n
- \r
- \t
- \'
- \”
- \\

Comments – Single Line

- Do's

  // convert Fahrenheit to Celsius

  float c = 5.0 / 9.0 * (f – 32.0);

- Don'ts

  //convert Fahrenheit to Celsius

  // convert Fahrenheit to Celsius.

Comments - Mutline

```
/**
 * hello.c
 *
 * Bagus Tris Atmaja
 * bagus@ep.its.ac.id
 *
 * Says hello to the world.
 */
```

Statement

```
int x = 12;
int x;
if ( x > y )
printf("hello, %s\n", s);
```

function

Variable

```
// declaring a variable
int counter = 0;
int counter2;

// resetting a variable
counter = 4;
counter2 = 5;
```

DEMO MATLAB

Variable

```
int counter = 0;

while (true)
{
    printf("%d\n", counter);
    counter++;
}
```

Keywords

auto double int struct

break else long switch

case enum register typedef

char extern return union

continue for signed void

do if static while

default goto sizeof volatile

const float short unsigned

Rules for writing file name (variable):

- Characters Allowed :
  - Underscore(_)
  - Capital Letters (A – Z)
  - Small Letters (a – z)
  - Digits (0 – 9)
- Blanks space & Commas are not allowed
- First Character should be alphabet or Underscore
- Variable name Should not be Reserved Word
- Choose meaningful name for an identifier

More: http://bagustris.blogspot.co.id/2013/05/project-naming-penamaan-proyek.html

Data Type

- characters
- integers
- floating points
- double
- long
- long long
- ...

```
#include <stdio.h>

int main(void)
{
   float f = 1 / 10;
   printf("%.1f\n", f);
}
```

```
#include <stdio.h>

int main(void)
{
   float f = 1.0 / 10.0;
   printf("%.1f\n", f);
}
```

Loop

- Digunakan untuk kejadian berulang
- Untuk i=0, i kurang dari 10, i=i++

  cetak *
- I++ **>>** i = i+1

- Output :

  ****

For Loops


```
for ( i = 1; i<=10; i++)
    // eksekusi
```

For

```
1 #include <stdio.h>
2
3 int main(void)
4 {
5     for (int i = 0; i <= 10; i++)
6         printf("*");
7 }
```

For [1]

```
1 #include <stdio.h>
2
3 int main(void)
4 {
5     for (int i = 0; i <= 10; i++)
6         printf("*");
7         printf("\n");
8 }
```

For [2]

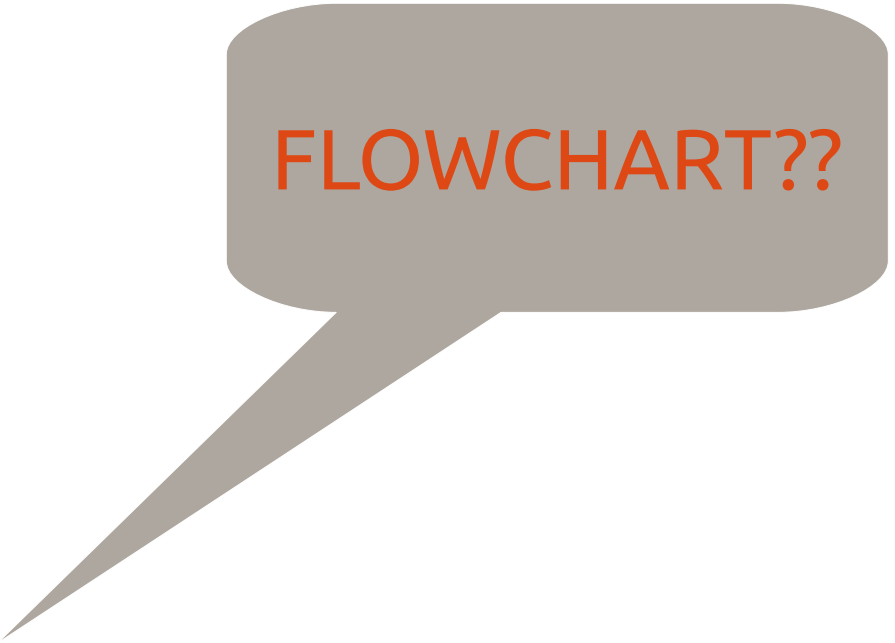
```
1 #include <stdio.h>
2
3 int main(void)
4 {
5     for (int i = 0; i <= 10; i++)
6         printf("*\n");
7 }
```

For [3]

```
1 #include <stdio.h>
2 int main(void) {
3 int i, j;
4 for (i=1; i<=10; i++)  {
5         for (j=1;j<=i; j++)
6             printf("*");
7          printf("\n");
8         }
9  }
```

Output

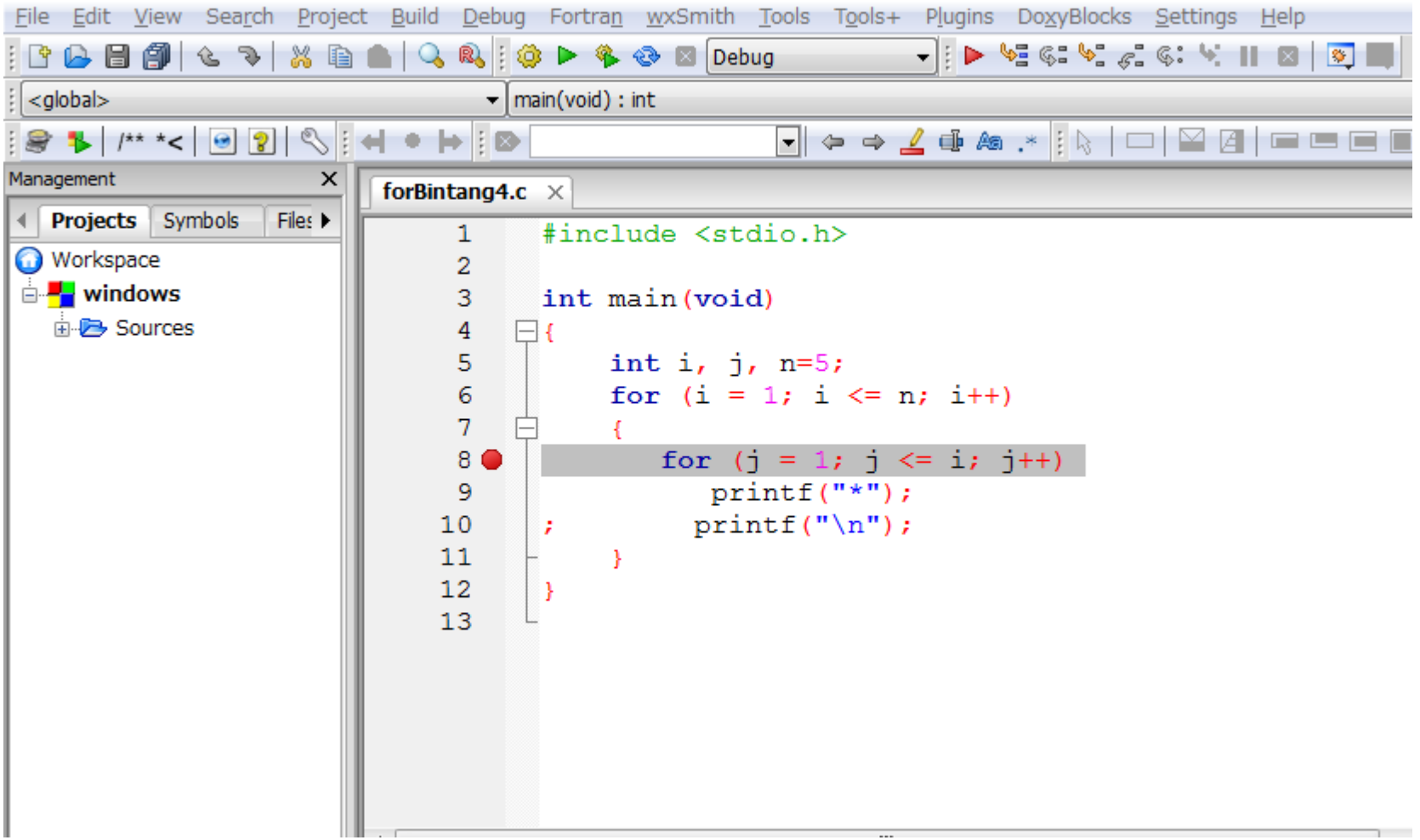
```
1    *
2    **
3    ***
4    ****
5    *****
6    ******
7    *******
8    ********
9    *********
10   **********
```



Debug

- Toggle break point (F5)
- Start (F8)
- Next line (F7)

inside project



Buatlah

- Flowchart untuk membentuk pola berikut.
- Input = N bilangan bulat
- Output

N =1	N = 3
*	* ** ***
N = 5	**N = 7**
* ** *** **** *****	* ** *** **** ***** ****** *******

Selamat Belajar

Work Hard

Work Smart

Learning by Doing

One day, One Code

Keep coding!