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Kelas : TLP023

Tugas : Algoritma & Pemrograman II – Modul 1 & Modul 2

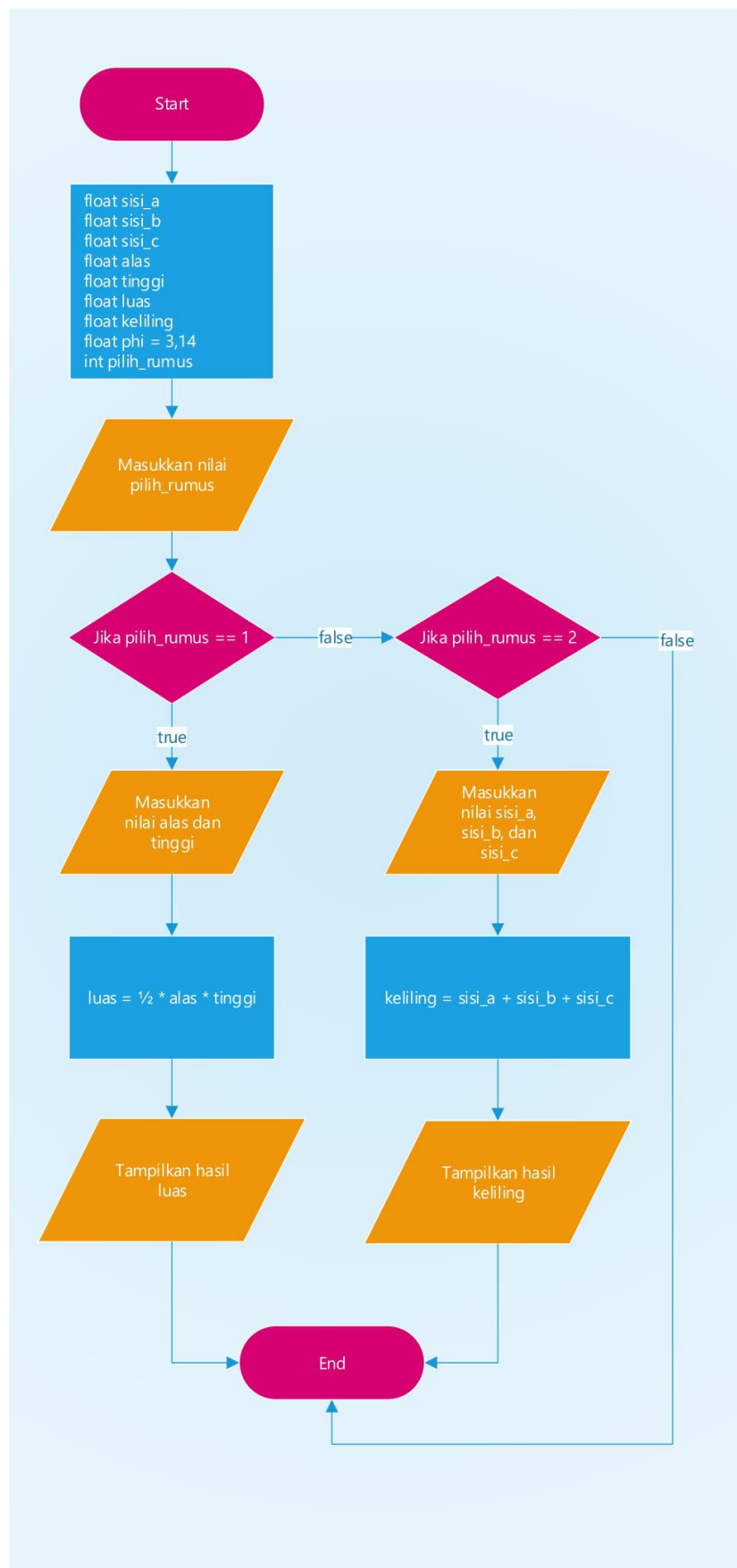
Modul 1

Buat algoritma menghitung luas dan keliling segitiga,serta buatlah flowchartnya !

- Algoritma menghitung luas dan keliling Segitiga

1. Masukkan nilai 1 atau 2 untuk memilih jenis perhitungan, nilai 1 untuk perhitungan luas dan nilai 2 untuk perhitungan keliling
2. Jika pengguna memasukkan angka 1, maka akan melakukan perhitungan luas segitiga.
 3. Masukkan nilai alas
 4. Masukkan nilai tinggi
 5. Hitung luas = $\frac{1}{2} \times a \times t$
 6. Tampilkan hasil perhitungan luas.
- 2.1. Jika pengguna memasukkan angka 2, maka akan melakukan perhitungan keliling segitiga
 - 3.1. Masukkan Nilai sisi a
 - 4.1. Masukkan Nilai sisi b
 - 5.1. Masukkan Nilai sisi c
 - 6.1. Hitung keliling = sisi a + sisi b + sisi c
 - 7.1. Tampilkan hasil perhitungan keliling.

- Flowchart menghitung luas dan keliling segitiga



Modul 2

1. Buat algoritma (dalam bentuk flowchart dan pseudocode) dan program bahasa C untuk menghitung luas lingkaran

- Algoritma

1. Masukkan nilai jari-jari lingkaran
2. Hitung luas lingkaran = $\pi \times \text{jari} \times \text{jari}$
3. Tampilkan hasil luas lingkaran

- Flowchart



- Pseudocode

Program menghitung luas_lingkaran

// deklarasi variable

var phi: float;

var jari, luas: int;

phi \leftarrow 3,14;

// input dari pengguna

read(jari);

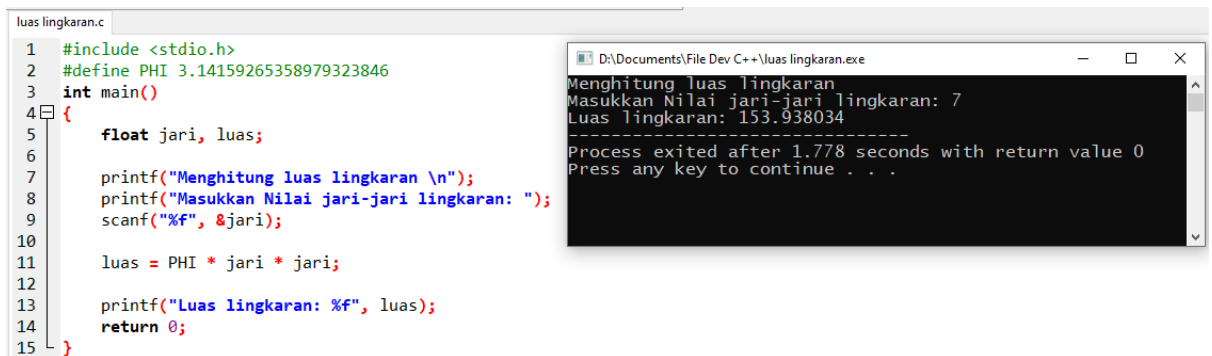
// hitung luas dengan rumus

luas \leftarrow phi * jari * jari;

// tampilkan hasil luas ke pengguna

write(luas);

- Program Bahasa C



The image shows a C program in a text editor and its execution in a command prompt. The program calculates the area of a circle using a predefined value for PI and a user-provided radius. The output shows the calculation for a radius of 7, resulting in an area of 153.938034.

```
luas_lingkaran.c
1  #include <stdio.h>
2  #define PHI 3.14159265358979323846
3  int main()
4  {
5      float jari, luas;
6
7      printf("Menghitung luas lingkaran \n");
8      printf("Masukkan Nilai jari-jari lingkaran: ");
9      scanf("%f", &jari);
10
11     luas = PHI * jari * jari;
12
13     printf("Luas lingkaran: %f", luas);
14     return 0;
15 }
```

```
D:\Documents\File Dev C++\luas_lingkaran.exe
Menghitung luas lingkaran
Masukkan Nilai jari-jari lingkaran: 7
Luas lingkaran: 153.938034
-----
Process exited after 1.778 seconds with return value 0
Press any key to continue . . .
```

2. Buat algoritma (dalam bentuk flowchart dan pseudocode) dan program bahasa C untuk menghitung nilai-nilai x dari persamaan

$$ax^2 + bx + c = 0$$

$$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

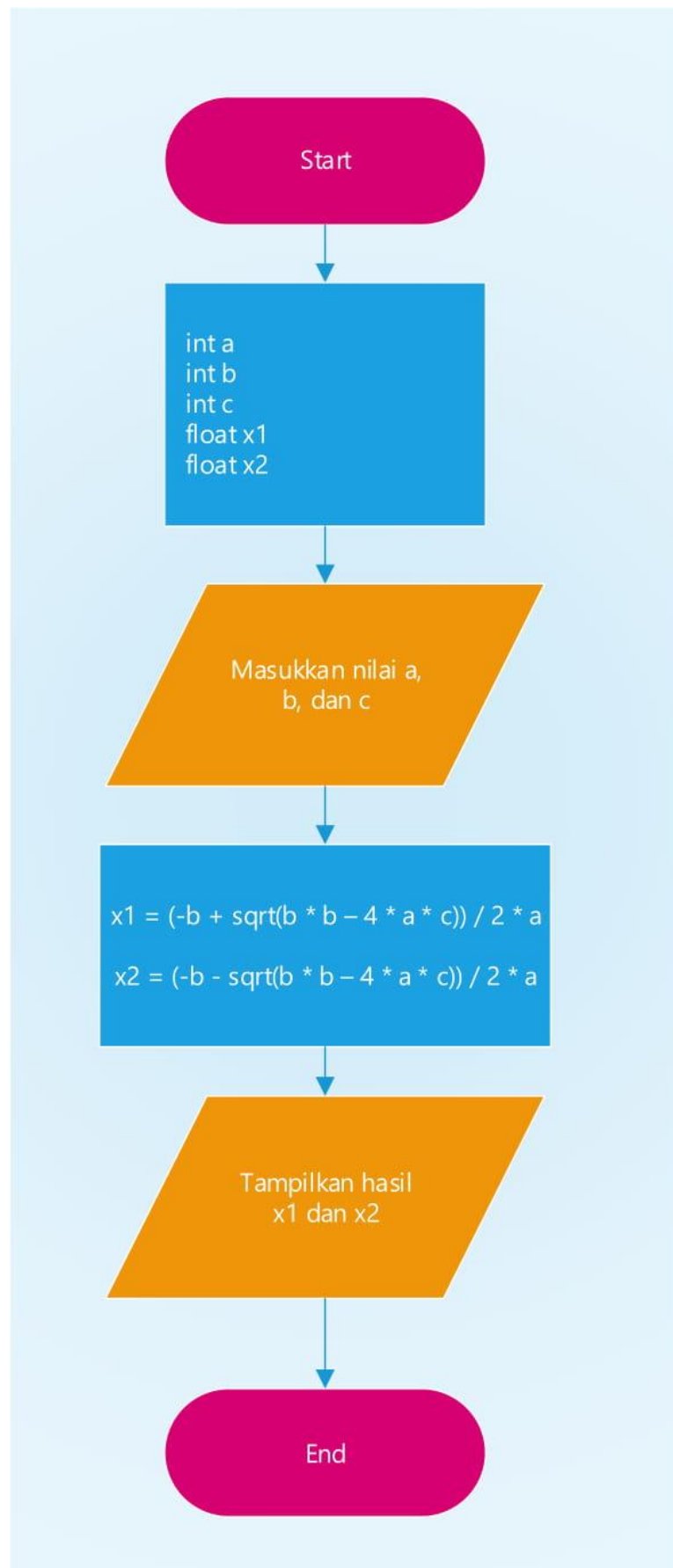
$$x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

inputnya a, b, c

- Algoritma

1. Masukkan nilai a
2. Masukkan nilai b
3. Masukkan nilai c
4. Hitung $x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$
5. Hitung $x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$
6. Tampilkan hasil x_1 dan x_2

- Flowchart



- Pseudocode

Program menghitung nilai-nilai x dari sebuah persamaan $ax^2 + bx + c = 0$

// deklarasi variable

var a, b, c: int;

var x1, x2: float;

// input dari pengguna

read(a);

read(b);

read(c);

// hitung x1 dan x2 dengan rumus

$x1 \leftarrow (-b + \sqrt{b^2 - 4 * a * c}) / (2 * a);$

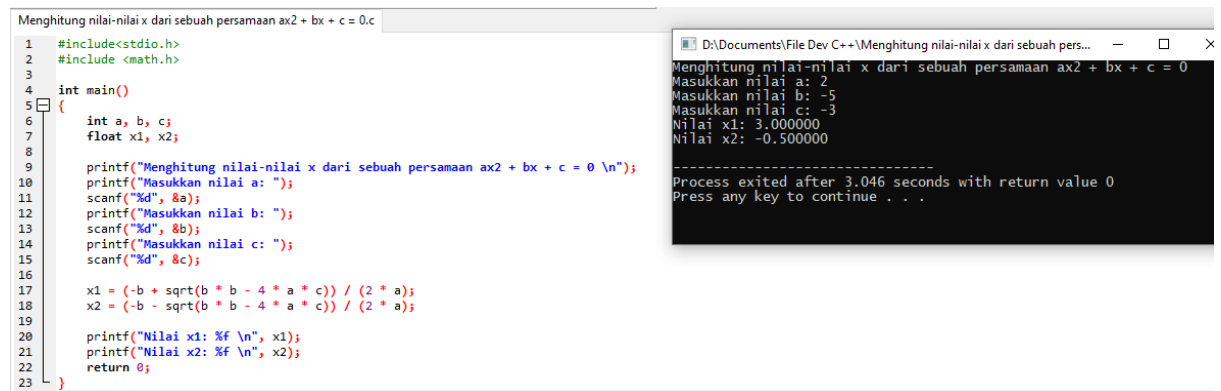
$x2 \leftarrow (-b - \sqrt{b^2 - 4 * a * c}) / (2 * a);$

// tampilkan hasil luas ke pengguna

write(x1);

write(x2);

- Program Bahasa C



The image shows a C program in a code editor and its execution in a terminal window. The code calculates the roots of a quadratic equation $ax^2 + bx + c = 0$ using the quadratic formula. The terminal output shows the user inputting values for a, b, and c, and the program outputting the calculated roots x1 and x2.

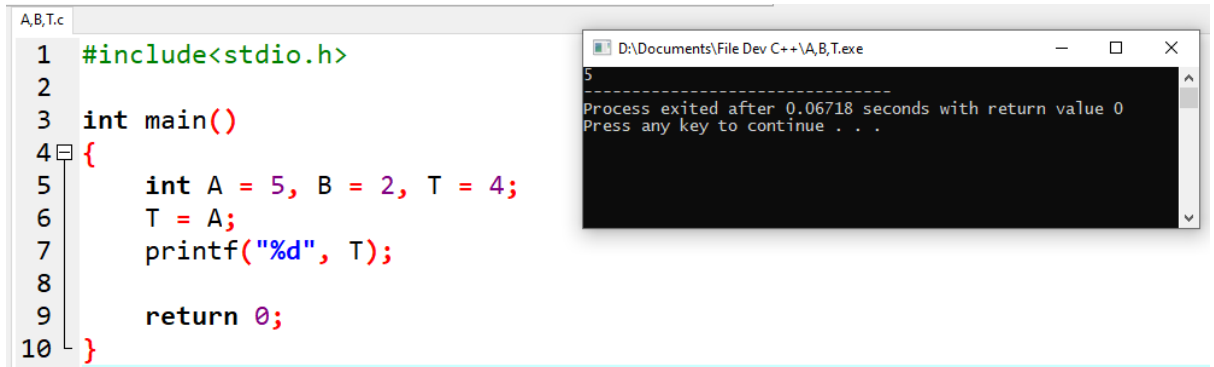
```
Menghitung nilai-nilai x dari sebuah persamaan ax2 + bx + c = 0.c
1  #include<stdio.h>
2  #include <math.h>
3
4  int main()
5  {
6      int a, b, c;
7      float x1, x2;
8
9      printf("Menghitung nilai-nilai x dari sebuah persamaan ax2 + bx + c = 0 \n");
10     printf("Masukkan nilai a: ");
11     scanf("%d", &a);
12     printf("Masukkan nilai b: ");
13     scanf("%d", &b);
14     printf("Masukkan nilai c: ");
15     scanf("%d", &c);
16
17     x1 = (-b + sqrt(b * b - 4 * a * c)) / (2 * a);
18     x2 = (-b - sqrt(b * b - 4 * a * c)) / (2 * a);
19
20     printf("Nilai x1: %f \n", x1);
21     printf("Nilai x2: %f \n", x2);
22     return 0;
23 }
```

```
D:\Documents\File Dev C++\Menghitung nilai-nilai x dari sebuah pers...
Menghitung nilai-nilai x dari sebuah persamaan ax2 + bx + c = 0
Masukkan nilai a: 2
Masukkan nilai b: -5
Masukkan nilai c: -3
Nilai x1: 3.000000
Nilai x2: -0.500000

-----
Process exited after 3.046 seconds with return value 0
Press any key to continue . . .
```

3. Jika diketahui nilai $A = 5$, $B = 2$, $T = 4$. Berapa isi A, B, dan T jika dikenai instruksi sbb:

a. $T = A$

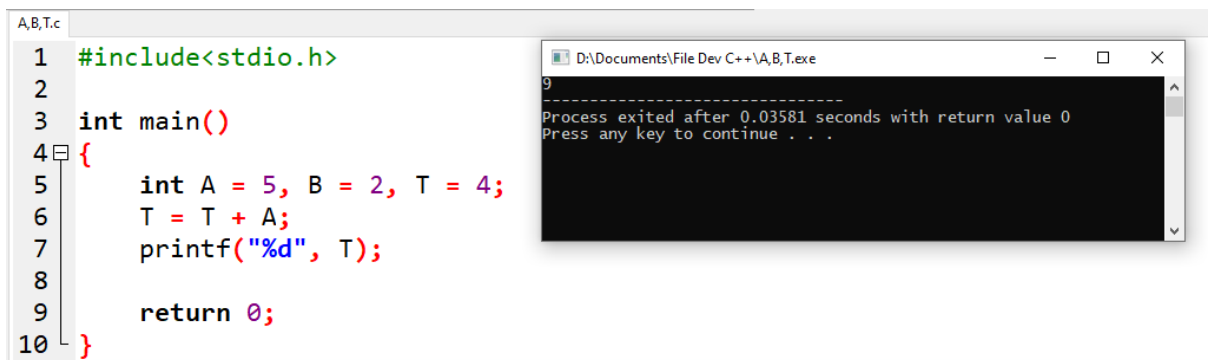


The screenshot shows a C++ IDE with a file named 'A,B,T.c'. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int A = 5, B = 2, T = 4;
6     T = A;
7     printf("%d", T);
8
9     return 0;
10 }
```

Next to the code is a terminal window titled 'D:\Documents\File Dev C++\A,B,T.exe'. It shows the output '5' followed by a separator line and the message 'Process exited after 0.06718 seconds with return value 0. Press any key to continue . . .'. The output '5' is the value of T after the assignment $T = A$.

b. $T = T + A$

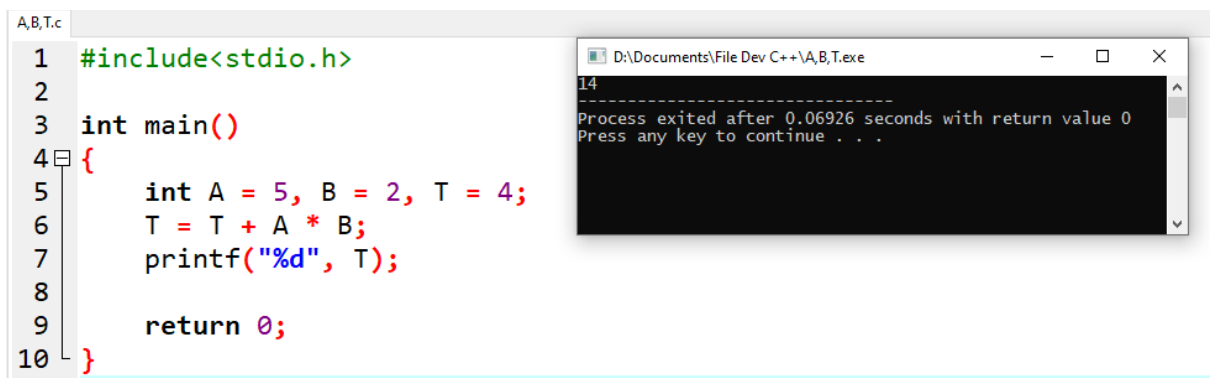


The screenshot shows a C++ IDE with a file named 'A,B,T.c'. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int A = 5, B = 2, T = 4;
6     T = T + A;
7     printf("%d", T);
8
9     return 0;
10 }
```

Next to the code is a terminal window titled 'D:\Documents\File Dev C++\A,B,T.exe'. It shows the output '9' followed by a separator line and the message 'Process exited after 0.03581 seconds with return value 0. Press any key to continue . . .'. The output '9' is the value of T after the assignment $T = T + A$.

c. $T = T + A * B$

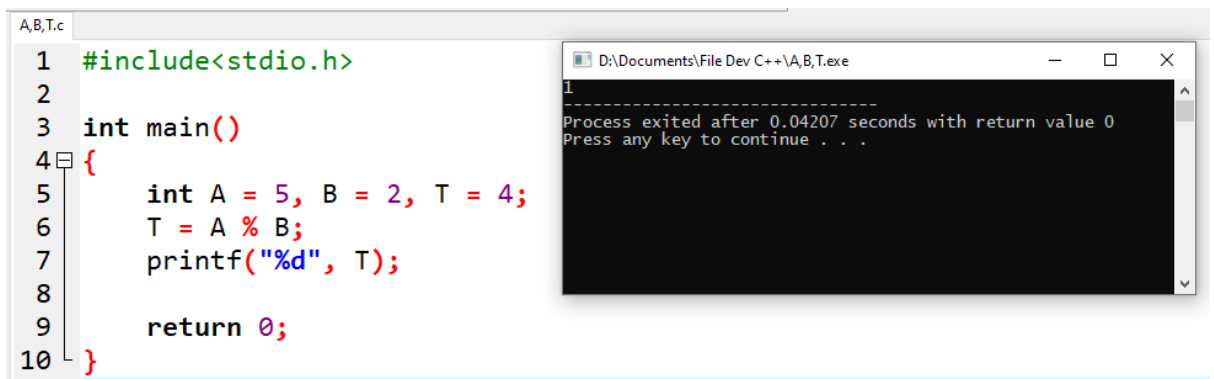


The screenshot shows a C++ IDE with a file named 'A,B,T.c'. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int A = 5, B = 2, T = 4;
6     T = T + A * B;
7     printf("%d", T);
8
9     return 0;
10 }
```

Next to the code is a terminal window titled 'D:\Documents\File Dev C++\A,B,T.exe'. It shows the output '14' followed by a separator line and the message 'Process exited after 0.06926 seconds with return value 0. Press any key to continue . . .'. The output '14' is the value of T after the assignment $T = T + A * B$.

d. $T = A \% B$



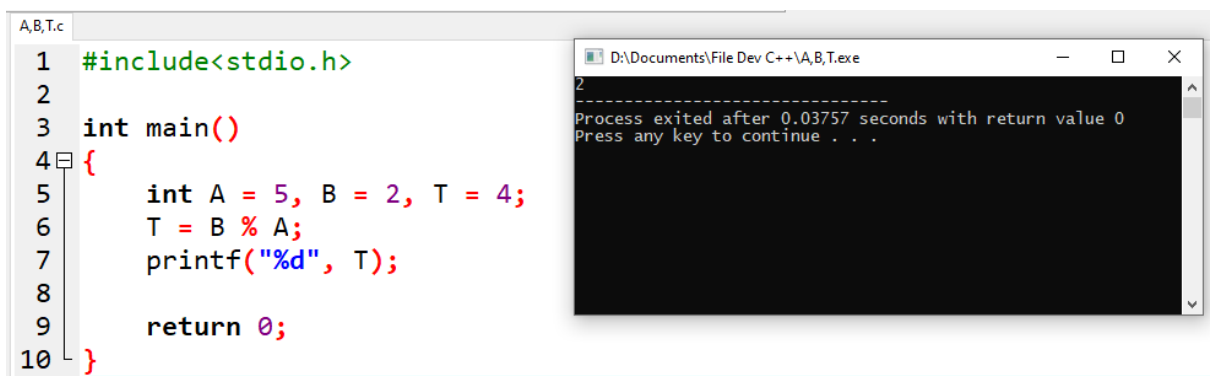
The screenshot shows a C++ IDE with a file named 'A,B,T.c'. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int A = 5, B = 2, T = 4;
6     T = A % B;
7     printf("%d", T);
8
9     return 0;
10 }
```

The output window shows the execution result:

```
1
-----
Process exited after 0.04207 seconds with return value 0
Press any key to continue . . .
```

e. $T = B \% A$



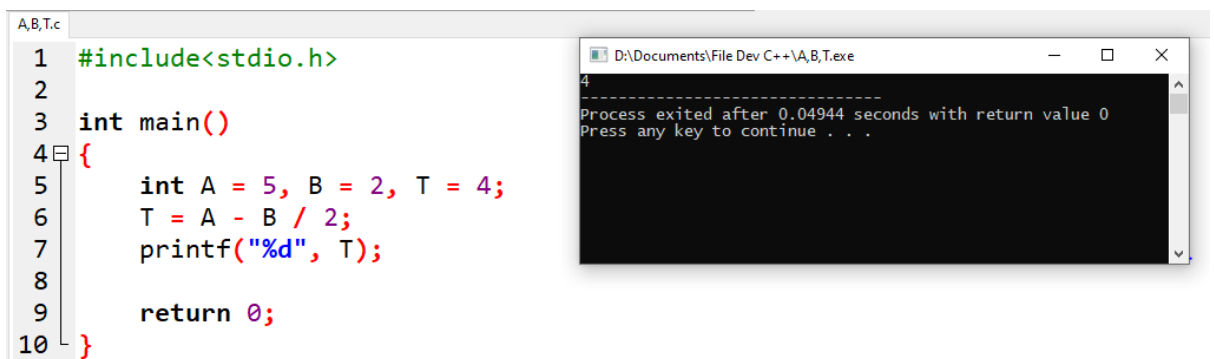
The screenshot shows a C++ IDE with a file named 'A,B,T.c'. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int A = 5, B = 2, T = 4;
6     T = B % A;
7     printf("%d", T);
8
9     return 0;
10 }
```

The output window shows the execution result:

```
2
-----
Process exited after 0.03757 seconds with return value 0
Press any key to continue . . .
```

f. $T = A - B / 2$



The screenshot shows a C++ IDE with a file named 'A,B,T.c'. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int A = 5, B = 2, T = 4;
6     T = A - B / 2;
7     printf("%d", T);
8
9     return 0;
10 }
```

The output window shows the execution result:

```
4
-----
Process exited after 0.04944 seconds with return value 0
Press any key to continue . . .
```

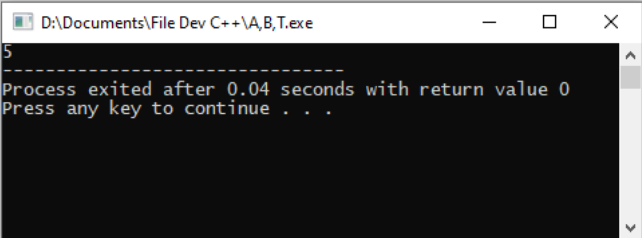
4. Jika diketahui A = 5, B = 2, berapa isi A dan B jika dikenai instruksi:

T = A

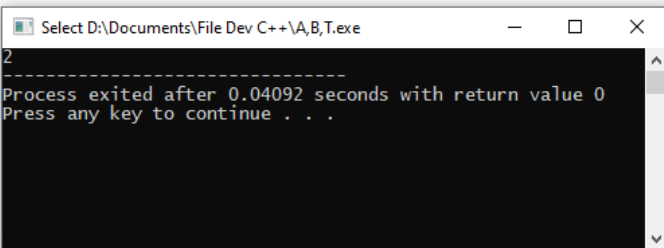
A = B

B = T

```
A,B,T,c
1  #include<stdio.h>
2
3  int main()
4  {
5      int A = 5, B = 2, T;
6      T = A;
7      A = B;
8      B = T;
9
10     printf("%d", B);
11
12     return 0;
13 }
```



```
A,B,T,c
1  #include<stdio.h>
2
3  int main()
4  {
5      int A = 5, B = 2, T;
6      T = A;
7      A = B;
8      B = T;
9
10     printf("%d", A);
11
12     return 0;
13 }
```



```
A,B,T,c
1  #include<stdio.h>
2
3  int main()
4  {
5      int A = 5, B = 2, T;
6      T = A;
7      A = B;
8      B = T;
9
10     printf("%d", T);
11
12     return 0;
13 }
```

