LAB 4: CONVERTING ALGORITHM TO C CODE

OBJECTIVES FOR THE STUDENT

1. To convert the given pseudo code into C code.
   [*Untuk menukar kod sudo kepada kod C*]

2. To convert the given flow chart into C code successfully.
   [*Untuk menukar carta alir kepada kod C*]

3. To compile, link and run the C program and produce the result.
   [*Untuk mengkompil, memaut, dan melaksana aturcara C serta menghasilkan keputusan*.]

4. To identify error messages and debug the program.
   [*Untuk mengenal pasti mesej ralat dan menyah ralat aturcara*]

ASSUMPTIONS

1. Students have the experience in developing pseudo code and flow chart.
   [*Pelajar mempunyai pengalaman dalam membina kod sudo dan carta alir*.]

2. Students have the knowledge on basic structure of C programming language.
   [*Pelajar mempunyai pengetahuan asas mengenai struktur asas bahasa pengaturcaraan C*]

LAB EXERCISES

EXERCISE 1:
[*LATIHAN 1*]

Refer to Exercise 3 of Lab 2.
[Rujuk pada Latihan 3 Makmal 2]

1. Convert the pseudo code of Algorithm 2.3 into correct C code. Compile and run the program and state the output of the program.
   [*Tukarkan kod sudo Algoritma 2.3 ke dalam kod C dengan betul. Kompil dan larikan aturcara dan nyatakan output bagi aturcara tersebut*.]

2. Convert the pseudo code of Algorithm 2.4 into correct C code. Compile and run the program and state the output of the program.
   [*Tukarkan kod sudo Algoritma 2.4 ke dalam kod C dengan betul. Kompil dan larikan aturcara dan nyatakan output bagi aturcara tersebut*.]

3. Convert the pseudo code of Algorithm 2.5 into correct C code. Compile and run the program and state the output of the program if the `Radius` is input as:
[*Tukarkan kod sudo Algoritma 2.5 ke dalam kod C dengan betul. Kompil dan larikan aturcara dan nyatakan output bagi aturcara tersebut jika* jejari *input adalah:*]

   i. 67
   ii. 320
   iii. 19

4. Convert the pseudo code of Algorithm 2.6 into correct C code. Compile and run the program and state the output of the program if the `Collection` is input as:
[*Tukarkan kod sudo Algoritma 2.6 ke dalam kod C dengan betul. Kompil dan larikan aturcara dan nyatakan output bagi aturcara tersebut jika* Simpanan *input adalah:*]

   i. 89123
   ii. 45560
   iii. 12

EXERCISE 2:
[*LATIHAN 2*]

Refer to Exercise 4 of Lab 2
[Rujuk pada Latihan 4 Makmal 2]

1. Convert the flow chart of Figure 2.10 into correct C code. Compile and run the program and state the output of the program.
[*Tukarkan carta alir Rajah 2.10 ke dalam kod C dengan betul. Kompil dan larikan aturcara dan nyatakan output bagi aturcara tersebut*.]

2. Convert the flow chart of Figure 2.11 into correct C code. Compile and run the program and state the output of the program if the input for the variables are as follows:
[*Tukarkan carta alir Rajah 2.11 ke dalam kod C dengan betul. Kompil dan larikan aturcara dan nyatakan output bagi aturcara tersebut jika input pembolehubah adalah seperti berikut*:]

   i. ItemName: **`Pencil`**
   PricePerUnit: **`0.50`**
   Quantity: **`15`**

   ii. ItemName: **`Note book`**
   PricePerUnit: **`2.00`**
   Quantity: **`5`**

iii. ItemName: **`Pencil`**
PricePerUnit: **`3`**
Quantity: **`1.20`**

EXERCISE 3:
[*LATIHAN 3*]

Given the following C program, compile and run the program. Write down any syntax error and logic error that occurs. Rewrite the program to correct the error.
[*Diberi aturcara C di bawah, kompil dan larikan aturcara tersebut. Tuliskan semula aturcara untuk membetulkan sintaks.*]

1.

```
1   //Program 4.1
2   #include <stdio.h>
3   #include <conio.h>
4
5   int main(){
6     Printf("I like programming ");
7     Getch();
8     Return 0;
9   }
```

2.

```
1   //Program 4.2
2   #include <stdio.h>
3   #include <conio.h>
4
5   int main (){
6     int nilai1;
7     nilai1 = 4;
8     printf("%d+%d=%d", nilai1, nilai2,
                                nilai1+nilai2);
9     getch();
10    return 0;
11  }
```

3.

```
1   //Program 4.3
2   #include <stdio.h>
3   #include <conio.h>
4   void main ( )
5   {
6       int 125umur
7       125umur = 125;
8       printf "umur= %d tahun", umur);
```

4.

```
1   //Program 4.4
2   #include <stdio.h>
3   #include <conio.h>
4   int main()
5   {
6     printf("'This is my simple program'");
7     getch();
8     return 0;
9   }
```

5.

```
1   //Program 4.5
2   #include <stdio.h>
3   #include <conio.h>
4   void my_address (void)
5   {
6         printf("Dayang Norhayati Abang Jawawi\n");
7         printf("\tFakulti Sains Komputer");
8         printf("dan Sistem Maklumat\n");
9         printf("\tSkudai, Johor\n");
10  }
11
12  void main ( )
13  {
14      print_my_address();
15      getch();
16  }
```

6.

```
1   //Program 4.6
2   #include <stdio.h>
3   #include <conio.h>
4   int main (){
5     char c1, c2, c3, c4;
6     c1=65; c2='A'; c3=0x41; c4=0101;
7     printf("%c %d %f %s", c1, c2, c3, c4);
8     getch();
9     return 0;
    }
```