King Hussein Faculty of Computing Sciences
Department of Computer Science

Structured Programming Lab
Assignment #1 – Writing Simple C Programs

Lab Exercises				
Exercise	**Ex. 1**	**Ex. 2**	**Ex. 3**	**Ex. 4**
Mark	**/2**	**3**	**/ 2**	**/3**
Total Mark	**/ 10**			

Lab #1 Objectives

- Using online IDE to create, compile, debug and run C programs.
- Using simple input and output statements.
- Identifying and using fundamental data types.
- Using arithmetic operators
- Using comments.

Part 1: Lab Tasks

Task 1 – Using the IDE for the First Time

- Read the step-by-step instructions tutorial
  https://docs.repl.it/tutorials/01-introduction-to-the-repl-it-ide

Part 2: Lab Exercises

Exercise 1 Simple Output

What is the output of the following code:

A:

```
int main() {
       printf("Programming is fun!\n");
       printf("Fundamentals First\n");
       printf("Problem Driven\n");
return 0;
 }
```

Answer : ----------

B:

```
int main() {
  printf("    PPPP  SSSS   U   U  TTTTTT\n " );
  printf("    P  P  S      U   U    T    \n ");
  printf("    PPPP  SSSS   U   U    T     \n ");
  printf("    P        S   U   U    T       \n ");
  printf("    P     SSSS   UUUUU    T  \n ");
return 0;

}
```

Answer : ----------

C:

```
int main() {
  printf("    PPPP  SSSS   U   U  TTTTTT " );
  printf("    P  P  S      U   U    T     ");
  printf("    PPPP  SSSS   U   U    T      ");
  printf("    P        S   U   U    T        ");
  printf("    P     SSSS   UUUUU    T   ");
return 0;

}
```

Answer : ----------

D:

```
#include <stdio.h>
int main() {
  printf("%c\t%c\t%d\t%d\n%10d\n", 'A', 65,'A',65, 1999);
  printf("%c\t%c\t%d\t%d\n", 'A'+1, 65+1,'A'+1,65+1);
  printf("%c\t %d\n", 'A'+32,'A'-'a');
  printf("%c\t %d\n", 'a'-32,'a'-'A');
  printf("%c\t %d\n", '5', '5');
  return 0;
}
```

Exercise 2 – Findling errors

Identify all errors in each of the following codes and correct them or the output if there is no error

A :

```
int  main () {
        int winner, tie, loser;
        char hello = "hello";
        winner = loser = tie = 5;
       printf("%d  %d  %d" ,  winner, ti, loser);
   return 0;
}
```

Answer : ----------

B:

```
#include <stdio.h>
int main
{
float number, half,
printf("Enter a number \n");

scanf("%f",number);
half =/ 2;
printf("The result is %d", half);
return 0;
}
```

C:

```
#include <stdio.h>
int main()
{
int n;
Printf("Enter a number \n");
Scanf("%d",&n);
Printf(" the square of the number is  %d", n *n);
return 0
}
```

Exercise 3 –

Exercise Objectives

- ✓ Using simple **output** statements
- ✓ Using **comments**

Problem Description

Develop a C program that

- Displays your information properly: student name, id, section number, instructor name, and student email
- **prints your first name** similar to the following pattern(example is AREF):

```
    A         RRRRRRR   EEEEEEEEE   FFFFFFFFF
   A A        R     R   E           F
  A   A       R     R   E           F
 AAAAAAA      RRRRRRR   EEEEEEEEE   FFFFFFFFF
A     A       R R       E           F
A     A       R   R     E           F
A     A       R     R   EEEEEEEEE   F
```

- Add **your name title, and email address** as a **comment** at the beginning of the program.
- Submit your program as a c-file (a file with .c extension)

Exercise 4 –

Exercise Objectives

- ✓ Using simple **input** and **output** statements with characters
- ✓ Using **arithmetic operators**
- ✓ Using **comments**

Problem Description

The vaccine of Covid-19 can be shipped in large or small containers. Larger containers can hold up to 100 vaccine bottles whereas small containers can hold up to 48 vaccine bottles.

- Develop and run a C program that performs the following that reads the number of the vaccine bottles to be shipped then calculates and prints the minimum number of containers needed to ship them all

- Note : the large container can only be used if filled 100%
  for example: if you have 250 vaccine bottles then you need 2 Large containers and 2 Small containers
- Submit your program as a c-file (a file with .c extension)