Lesson 14 Lab

Task 1: To define a union called student_info includes:

- a char array named name (length 20 chars)
- a char named gender
- an integer named age

Paste your code in the box below

```
union student_info
{
    char name[20];
    char gender;
    int age;
};
```

And then to define a struct named student includes three instances of the union, one for each purpose.

Paste your code in the box below.

```
struct student
{
    union student_info name;
    union student_info gender;
    union student_info age;
};
```

Task 2: With the struct defined in your Task1, to declare one variable of the struct and to give values as below:

name: Jenny Simpson ('F' for female) age: 26

Paste your code in the box below

```
#include <stdio.h>
#include <string.h>

union student_info
{
    char name[20];
    char gender;
    int age;
```

```
};

struct student
{
    union student_info name;
    union student_info gender;
    union student_info age;
};

int main()
{
    struct student s1;
    strcpy(s1.name.name, "Jenny Simpson");
    s1.gender.gender = 'F';
    s1.age.age = 26;
    return 0;
}
```

Task 3: define a program declares an int n with initial value 7, and then prints all of listed values with "%d" without changing the value in n:

(1) Bitwise AND for n and 11 (eleven in decimal)
(2) Bitwise OR for n and 0x1001 (1001 in hex)
(3) Bitwise XOR for n and 0x1111 (1111 in hex)

Paste your code in the box below

```
#include <stdio.h>

int main()
{
    int n = 7;
    printf("%d\n", n & 11);
    printf("%d\n", n | 0x1001);
    printf("%d", n ^ 0x1111);

    return 0;
}
```

Task 4: define a program declares an int n with initial value 7, and then prints all of listed values with "%d" without changing the value in n:

(1) Left shift value in n for two bits (To print shifted value without changing n)
(2) Right shift value in n for two bits (To print shifted value without changing n)
(3) Bitwise NOT (One's compliment) of n

Paste your code in the box below

```
#include <stdio.h>

int main()
{
    int n = 7;
    printf("%d\n", n << 2);
    printf("%d\n", n >> 2);
    printf("%d", ~n);

    return 0;
}
```

Task 5: define a program declares two enums named seasons and weekdays with values as:

- seasons: SPRING (1), SUMMER(2), FALL (3), WINTER(4)
- weekdays: SUNDAY(0), MONDAY(1), …, SATURDAY(6)

And then, to print the correspond values for Wednesday and Fall

Paste your enum definitions code in the box below

```
enum Seasons
{
    None,
    SPRING,
    SUMMER,
    FALL,
    WINTER
};

enum Weekdays
{
    SUNDAY,
    MONDAY,
    TUESDAY,
    WEDNESDAY,
```

```
    THURSDAY,
    FRIDAY,
    SATURDAY
};
```

Paste your main function code in the box below

```
#include <stdio.h>

int main()
{
    enum Weekdays wednesday = WEDNESDAY;
    enum Seasons fall = FALL;
    printf("%d\n", wednesday);
    printf("%d\n", fall);

    return 0;
}
```