# 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;  } |