

Bit Fields in Union and Structure assignments

Mandatory

1. You need to store the status of traffic light i.e status of Red, Green, Orange Bulb On/Off status. Define an appropriate data structure for this.

```
user72@trainux01: ~/Assignments
1 #include <stdio.h>
2
3 typedef struct {
4     unsigned int red : 1;
5     unsigned int green : 1;
6     unsigned int orange : 1;
7 } TrafficLightStatus;
8 int main() {
9     TrafficLightStatus light = {1, 0, 1};
10    printf("Traffic Light Status:\n");
11    printf("Red: %s\n", light.red ? "On" : "Off");
12    printf("Green: %s\n", light.green ? "On" : "Off");
13    printf("Orange: %s\n", light.orange ? "On" : "Off");
14
15    return 0;
16 }

user72@trainux01:~/Assignments$ vi bit.c
user72@trainux01:~/Assignments$ gcc bit.c
user72@trainux01:~/Assignments$ ./a.out
Traffic Light Status:
Red: On
Green: Off
Orange: On
```

2. Define an appropriate data structure to store Person details namely name [max length 100 bytes], age (considering person living for 100 years).

user72@trainux01: ~/Assignments

```
1 #include <stdio.h>
2 #include <string.h>
3 #define MAX_NAME_LENGTH 100
4 typedef struct {
5     char name[MAX_NAME_LENGTH];
6     unsigned char age;
7 } Person;
8 int main() {
9     Person p1;
10    strcpy(p1.name, "Rama Krishna Reddy");
11    p1.age = 50;
12    printf("Person Details:\n");
13    printf("Name: %s\n", p1.name);
14    printf("Age: %d\n", p1.age);
15    return 0;
16 }
```

```
user72@trainux01:~/Assignments$ vi union.c
user72@trainux01:~/Assignments$ gcc union.c
user72@trainux01:~/Assignments$ ./a.out
Person Details:
Name: Rama Krishna Reddy
Age: 50
```