2. Write a structure to store the roll no., name, age (between 11 to 14) and address
of students (more than 10). Store the information of the students.
- print the names of all the students having age 14.
- print the names of all the students having even roll no.
- display the details of the student whose roll no is given (i.e. roll no. entered by the user).

Using structure variable

```c
#include <stdio.h>

#include <stdlib.h>

#include <string.h>

struct Student

{

    char* name;

    int roll_number;

    int age;

};

int main()

{

    int i = 0, n = 11;

    struct Student student[n];

    student[0].roll_number = 1;

    student[0].name = "Gopal";

    student[0].age = 12;

    student[1].roll_number = 2;

    student[1].name = "Abdul";

    student[1].age = 10;

    student[2].roll_number = 3;

    student[2].name = "Santosh";

    student[2].age = 11;
```

```c
    student[3].roll_number = 4;

    student[3].name = "BuntyBhai";

    student[3].age = 12;

    student[4].roll_number = 5;

    student[4].name = "Raja";

    student[4].age = 11;

    student[5].roll_number = 6;

    student[5].name = "Raja";

    student[5].age = 13;

    student[6].roll_number = 7;

    student[6].name = "Shalinee";

    student[6].age = 14;

    student[7].roll_number = 8;

    student[7].name = "Anwesh";

    student[7].age = 13;

    student[8].roll_number = 9;

    student[8].name = "Gunu";

    student[8].age = 11;

    student[9].roll_number = 10;

    student[9].name = "Rashmi";

    student[9].age = 13;

   student[10].roll_number =11;

    student[10].name = "Sasmita";

    student[10].age = 13;

    printf("Student Records:\n");

    for (i = 0; i < n; i++)

    {
```

```c
        printf("\tName = %s\n", student[i].name);

        printf("\tRoll Number = %d\n", student[i].roll_number);

        printf("\tAge = %d\n", student[i].age);

        printf("\n");

    }

    printf("The names of all the students having age 14");

    printf("\n");

    for (i = 0; i < n; i++)

    {

        if(student[i].age==14)

        {

            printf("\tName = %s\n", student[i].name);

            printf("\tRoll Number = %d\n", student[i].roll_number);

            printf("\tAge = %d\n", student[i].age);

            printf("\n");

        }

    }

    printf("The names of all the students having even roll no");

    printf("\n");

    for (i = 0; i < n; i++)

    {

        if(student[i].roll_number%2==0)

        {

            printf("\tName = %s\n", student[i].name);

            printf("\tRoll Number = %d\n", student[i].roll_number);

            printf("\tAge = %d\n", student[i].age);

            printf("\n");
```

```c
        }
    }
    return 0;
}
```

Using typedef

```c
#include <stdio.h>

#include <stdlib.h>

#include <string.h>

typedef struct Student

{

    char* name;

    int roll_number;

    int age;

};

int main()

{

    int i = 0, n = 11;

    struct Student student[n];

    student[0].roll_number = 1;

    student[0].name = "Gopal";

    student[0].age = 12;

    student[1].roll_number = 2;

    student[1].name = "Abdul";

    student[1].age = 10;

    student[2].roll_number = 3;

    student[2].name = "Santosh";

    student[2].age = 11;
```

```c
        student[3].roll_number = 4;

        student[3].name = "BuntyBhai";

        student[3].age = 12;

        student[4].roll_number = 5;

        student[4].name = "Raja";

        student[4].age = 11;

        student[5].roll_number = 6;

        student[5].name = "Raja";

        student[5].age = 13;

        student[6].roll_number = 7;

        student[6].name = "Shalinee";

        student[6].age = 14;

        student[7].roll_number = 8;

        student[7].name = "Anwesh";

        student[7].age = 13;

        student[8].roll_number = 9;

        student[8].name = "Gunu";

        student[8].age = 11;

        student[9].roll_number = 10;

        student[9].name = "Rashmi";

        student[9].age = 13;

        student[10].roll_number =11;

        student[10].name = "Sasmita";

        student[10].age = 13;

        printf("Student Records:\n");

        for (i = 0; i < n; i++)

        {
```

```c
        printf("\tName = %s\n", student[i].name);

        printf("\tRoll Number = %d\n", student[i].roll_number);

        printf("\tAge = %d\n", student[i].age);

        printf("\n");

    }

    printf("The names of all the students having age 14");

    printf("\n");

    for (i = 0; i < n; i++)

    {

        if(student[i].age==14)

        {

            printf("\tName = %s\n", student[i].name);

            printf("\tRoll Number = %d\n", student[i].roll_number);

            printf("\tAge = %d\n", student[i].age);

            printf("\n");

        }

    }

    printf("The names of all the students having even roll no");

    printf("\n");

    for (i = 0; i < n; i++)

    {

        if(student[i].roll_number%2==0)

        {

            printf("\tName = %s\n", student[i].name);

            printf("\tRoll Number = %d\n", student[i].roll_number);

            printf("\tAge = %d\n", student[i].age);

            printf("\n");
```

```c
        }
    }
    return 0;
}
```

Using array of structures

```c
#include <stdio.h>
#include <string.h>
struct student
{
    int rno;
    char name[30];
    int age;
};
int main()
{
    int i;
    struct student record[20];
    record[0].rno=1;
    strcpy(record[0].name, "Gopal");
    record[0].age = 11;
    record[1].rno=2;
    strcpy(record[1].name, "Abdul");
    record[1].age = 12;
    record[2].rno=3;
    strcpy(record[2].name, "Shalinee");
    record[2].age = 13;
    record[3].rno=4;
    strcpy(record[3].name, "Raja");
```

```c
    record[3].age = 14;

    record[4].rno=5;

    strcpy(record[4].name, "Sabya");

    record[4].age = 11;

    record[5].rno=6;

    strcpy(record[5].name, "Rashmi");

    record[5].age = 12;

    record[6].rno=7;

    strcpy(record[6].name, "Sonali");

    record[6].age = 13;

    record[7].rno=8;

    strcpy(record[7].name, "Sasmita");

    record[7].age = 14;

    record[8].rno=9;

    strcpy(record[8].name, "Biswa");

    record[8].age = 12;

    record[9].rno=10;

    strcpy(record[9].name, "Bunty");

    record[9].age = 11;

    record[10].rno=11;

    strcpy(record[10].name, "Santosh");

    record[10].age = 13;
  printf("Record of student who have roll number 14");
  for(i=0; i<11; i++)
  {
    if(record[i].age==14)
    {
      printf("    \nRecords of STUDENT : %d \n", i+1);
```

```c
        printf(" Roll no is: %d \n", record[i].rno);

        printf(" Name is: %s \n", record[i].name);

        printf(" Age is: %d\n\n",record[i].age);

     }

    }

    printf("Record of studentwho have even roll no");

      for(i=0; i<11; i++)

      {

      if(record[i].rno%2==0)

      {

        printf("    \nRecords of STUDENT : %d \n", i+1);

        printf(" Roll no is: %d \n", record[i].rno);

        printf(" Name is: %s \n", record[i].name);

        printf(" Age is: %d\n\n",record[i].age);

      }

    }

    return 0;

}
```

Using nested structure

```c
#include <stdio.h>

#include <stdlib.h>

#include <string.h>

struct Student
{
    char* name;

    int roll_number;

    int age;
};

int main()
{
    int i = 0, n = 11;

    struct Student student[n];

    student[0].roll_number = 1;

    student[0].name = "Gopal";

    student[0].age = 12;

    student[1].roll_number = 2;

    student[1].name = "Abdul";

    student[1].age = 10;

    student[2].roll_number = 3;

    student[2].name = "Santosh";

    student[2].age = 11;

    student[3].roll_number = 4;

    student[3].name = "BuntyBhai";

    student[3].age = 12;

    student[4].roll_number = 5;

    student[4].name = "Raja";
```

```c
    student[4].age = 11;

    student[5].roll_number = 6;

    student[5].name = "Raja";

    student[5].age = 13;

    student[6].roll_number = 7;

    student[6].name = "Shalinee";

    student[6].age = 14;

    student[7].roll_number = 8;

    student[7].name = "Anwesh";

    student[7].age = 13;

    student[8].roll_number = 9;

    student[8].name = "Gunu";

    student[8].age = 11;

    student[9].roll_number = 10;

    student[9].name = "Rashmi";

    student[9].age = 13;
student[10].roll_number =11;

    student[10].name = "Sasmita";

    student[10].age = 13;

    printf("Student Records:\n");

    for (i = 0; i < n; i++)

    {

        printf("\tName = %s\n", student[i].name);

        printf("\tRoll Number = %d\n", student[i].roll_number);

        printf("\tAge = %d\n", student[i].age);

        printf("\n");

    }

    printf("The names of all the students having age 14");
```

```c
    printf("\n");

    for (i = 0; i < n; i++)

    {

       if(student[i].age==14)

       {

          printf("\tName = %s\n", student[i].name);

          printf("\tRoll Number = %d\n", student[i].roll_number);

          printf("\tAge = %d\n", student[i].age);

          printf("\n");

       }

    }

    printf("The names of all the students having even roll no");

    printf("\n");

    for (i = 0; i < n; i++)

    {

       if(student[i].roll_number%2==0)

       {

          printf("\tName = %s\n", student[i].name);

          printf("\tRoll Number = %d\n", student[i].roll_number);

          printf("\tAge = %d\n", student[i].age);

          printf("\n");

       }

    }

    return 0;

}
```

Passing structure to function

```c
#include <stdio.h>

#include <string.h>

struct student

{

        int rno;

        char name[20];

        int age;

};


void func(struct student record);

int main()

{

        struct student record;

        int i;

    for(i=0;i<=10;i++)

    {

        record.rno=1;

        strcpy(record.name, "Gopal");

        record.age = 14;

        record.rno=2;

        strcpy(record.name, "Abdul");

        record.age = 13;

        record.rno=3;

        strcpy(record.name, "Raja");

        record.age = 12;

        record.rno=4;

        strcpy(record.name, "Shalinee");
```

```c
        record.age = 11;

        record.rno=5;

        strcpy(record.name, "Rashmi");

        record.age = 12;

        record.rno=6;

        strcpy(record.name, "Sasmita");

        record.age = 13;

        record.rno=7;

        strcpy(record.name, "Biswa");

        record.age = 14;

        record.rno=8;

        strcpy(record.name, "Santosh");

        record.age = 14;

        record.rno=9;

        strcpy(record.name, "Sonali");

        record.age = 11;

        record.rno=10;

        strcpy(record.name, "Bunty");

        record.age = 12;

        func(record);

    }

        return 0;

}


void func(struct student record)

{

    int i=0;

        printf(" Id is: %d \n", record.rno);
```

```c
        printf(" Name is: %s \n", record.name);

        printf(" Percentage is: %d \n", record.age);

}
```

Using union variable

```c
#include<stdio.h>

#include<stdlib.h>

#include<string.h>

struct student

{

  union

  {

    char name[10];

    int roll_number;

    int age;

  };

};

int main()

{

  int i = 0, n = 11;

  struct Student student[n];

  student[0].roll_number = 1;

  student[0].name = "Gopal";

  student[0].age = 12;

  student[1].roll_number = 2;

  student[1].name = "Abdul";

  student[1].age = 10;
```

```c
student[2].roll_number = 3;

student[2].name = "Santosh";

student[2].age = 11;

student[3].roll_number = 4;

student[3].name = "BuntyBhai";

student[3].age = 12;

student[4].roll_number = 5;

student[4].name = "Raja";

student[4].age = 11;

student[5].roll_number = 6;

student[5].name = "Raja";

student[5].age = 13;

student[6].roll_number = 7;

student[6].name = "Shalinee";

student[6].age = 14;

student[7].roll_number = 8;

student[7].name = "Anwesh";

student[7].age = 13;

student[8].roll_number = 9;

student[8].name = "Gunu";

student[8].age = 11;

student[9].roll_number = 10;

student[9].name = "Rashmi";

student[9].age = 13;

student[10].roll_number =11;

student[10].name = "Sasmita";
```

```c
        student[10].age = 13;

        printf("Student Records:\n");

        for (i = 0; i < n; i++)

        {

            printf("\tName = %s\n", student[i].name);

            printf("\tRoll Number = %d\n", student[i].roll_number);

            printf("\tAge = %d\n", student[i].age);

            printf("\n");

        }

        printf("The names of all the students having age 14");

        printf("\n");

        for (i = 0; i < n; i++)

        {

            if(student[i].age==14)

            {

                printf("\tName = %s\n", student[i].name);

                printf("\tRoll Number = %d\n", student[i].roll_number);

                printf("\tAge = %d\n", student[i].age);

                printf("\n");

            }

        }

        printf("The names of all the students having even roll no");

        printf("\n");

        for (i = 0; i < n; i++)

        {

            if(student[i].roll_number%2==0)
```

```c
    {
        printf("\tName = %s\n", student[i].name);

        printf("\tRoll Number = %d\n", student[i].roll_number);

        printf("\tAge = %d\n", student[i].age);

        printf("\n");
    }
    }
    return 0;
}
```