```c
*********Program 15.c *****************************
//get n bits from position p
#include<stdio.h>
int main() {
 short int x, x1;
 short int mask;
 int p, n;
 scanf("%hd%d%d",&x, &p, &n);

 x1 = x >> (p-n +1);
 printf("x1 is %d\n", x1);

 mask = ~(~ 0 << n);
 printf("Mask is %d\n", mask);

 x1 = x1 & mask;
 printf(" %d bits from position %d is %d\n", p, n, x1);
}
*********Program 16.c *****************************
#include<stdio.h>
int main() {
  int a[] = {10, 20, 30, 40, 50};
  int i;
  for (i = 0; i < 5; i++) {
   printf("%d\n",a[i]);
  }

  printf("Now read...from user\n");
  for (i = 0; i < 5; i++) {
    scanf("%d",&a[i]);
  }

  for (i = 0; i < 5; i++) {
   printf("%d\n",a[i]);
  }

  int b[5];
  for (i = 0; i < 5; i++) {
    b[i] = a[i];
  }
  printf("printing b array\n");
  for (i = 0; i < 5; i++) {
   printf("%d\n",b[i]);
  }

}
*********Program 17.c *****************************
#include<stdio.h>
#include<stdlib.h>
int main() {
  int a[50];
  int n, i;
  float sum = 0, mean;
  scanf("%d",&n);
  if (n > 50) {
    printf("cannot handle inputs more than 50\n");
    exit(1);
  }

  for (i = 0; i < n; i++) {
    scanf("%d", &a[i]);
    sum = sum + a[i];
```

```
  }
  mean = sum / n;
  printf("mean is %.4f\n", mean);

}
*********Program 18.c ****************************
#include<stdio.h>
#include<stdlib.h>
int main() {
  int a[50];
  int b[11];
  int n, i, j;
  float sum = 0, mean;
  scanf("%d",&n);
  if (n > 50) {
    printf("cannot handle inputs more than 50\n");
    exit(1);
  }

  printf("reading %d marks in the range [0-10]\n", n);

  //intialize the b[] array to zero...
  for (i = 0; i < 11; i++) {
    b[i] = 0;
  }

  for (i = 0; i < n; i++) {
    scanf("%d", &a[i]);
    if (a[i] > 10) {
      printf("input marks out of range \n");
      exit(1);
    }
    b[a[i]] = b[a[i]] + 1;
  }

  for (i = 0; i < 11; i++) {
   printf("%d %d\n",i, b[i]);
  }


  //graphical display.
  printf("graphical display..\n");
  for (i = 0; i < 11; i++) {
   printf("%d\t",i);
   for (j = 0; j < b[i]; j++) {
     printf("*");
   }
   printf("\n");
  }



}
```