DSA ASSIGNMENT-1

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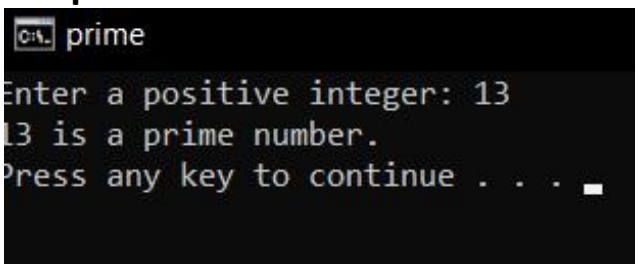
CSE 37

Q1. WAP to test whether a number is prime or not.

Ans.

```
#include <stdio.h>

int main() {

  int n, i, flag = 0;
  printf("Enter a positive integer: ");
  scanf("%d", &n);

  if (n == 0 && n == 1)
    flag = 1;

  for (i = 2; i <= n / 2; ++i) {

    if (n % i == 0) {
      flag = 1;
      break;
    }
  }

  if (flag == 0)
    printf("%d is a prime number.", n);
  else
    printf("%d is not a prime number.", n);

  return 0;
}
```

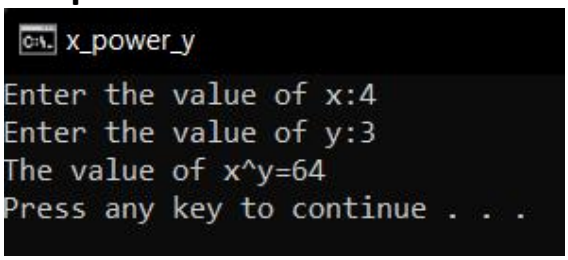
Output:



Q2. WAP to calculate x^y using functions.

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

int power(int a,int b)
{
    int ans;
    ans=pow(a,b);
    return ans;

    printf("  %d^%d : %d", a, b, ans);
}
int main()
{
  int x,y,a;
 printf("Enter the value of x:");
 scanf("%d",&x);
 printf("Enter the value of y:");
 scanf("%d",&y);
 a=power(x,y);

 printf("The value of x^y=%d",a);

 return 0;
}
```

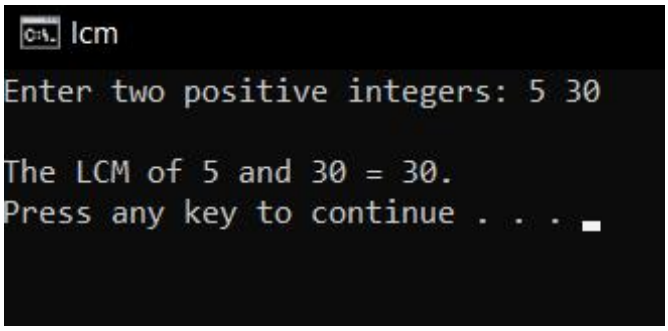
Output:



Q3. WAP to find LCM of two numbers using functions

```
#include <stdio.h>
int LCM(int x, int y, int max);

int main() {
	int x, y, max;
	printf ("Enter two positive integers: ");
	scanf ("%d %d", &x, &y);

	max = (x > y) ? x : y;
	int ans = LCM(x, y, max);
	printf ("\nThe LCM of %d and %d = %d. ", x, y, ans);

	return 0;
}

int LCM ( int x, int y, int max) {

	while (1) {
		if (max % x == 0 && max % y == 0) {
			return max;
			break;
		} else {
			++max;
		}
	}
```

Output:

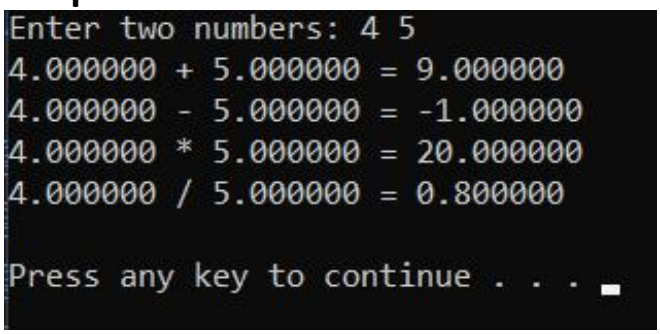


Q4. Calculator program

```
#include<stdio.h>

float add(float n1, float n2);
float sub(float n1, float n2);
float mult(float n1, float n2);
float div(float n1, float n2);
float div0(float n1, float n2);

int main()
{
  float num1, num2;

  printf("Enter two numbers: ");
  scanf("%2f %2f", &num1, &num2);

  printf("%2f + %2f = %2f\n", num1, num2, add(num1, num2));
  printf("%2f - %2f = %2f\n", num1, num2, sub(num1, num2));
  printf("%2f * %2f = %2f\n", num1, num2, mult(num1, num2));
  printf("%2f / %2f = %2f\n", num1, num2, div(num1, num2));

  return 0;
}

float add(float n1, float n2)
{
```

```
 float ans;
 ans = n1 + n2;
 return ans;
}

float sub(float n1, float n2)
{
 float ans;
 ans = n1 - n2;
 return ans;
}

float mult(float n1, float n2)
{
 float ans;
 ans = n1 * n2;
 return ans;
}

float div(float n1, float n2)
{
 float ans;
 ans = n1 / n2;
 return ans;
}
```

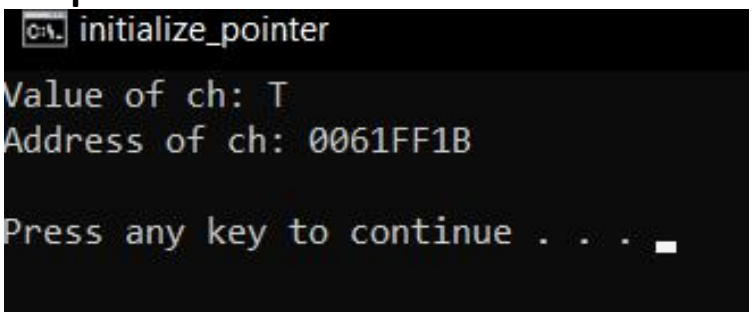
Output:



Q5. WAP to create, initialize, assign and access a pointer variable.

```
#include <stdio.h>

int main()
{

   char ch;
   char *pCh;
   pCh = &ch;
   ch = 'T';

   printf("Value of ch: %c\n",ch);
   printf("Address of ch: %p\n",&ch);

  return 0;
}
```

Output:

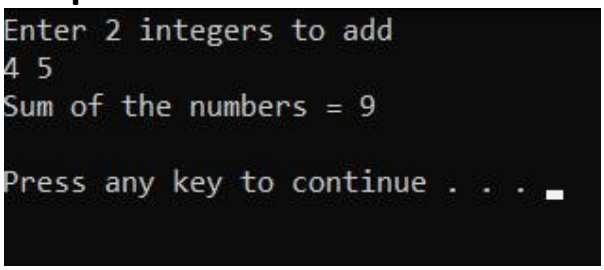


Q6. WAP to add two numbers using pointers

```
#include <stdio.h>
int main()
{
  int n1, n2, *p, *q, sum;

  printf("Enter 2 integers to add\n");
  scanf("%d%d", &n1, &n2);
  p = &n1;
```

```
  q = &n2;

  sum = *p + *q;

  printf("Sum of the numbers = %d\n", sum);

  return 0;
}
```

Output:



Q7. Swap two numbers using call by reference.

```
#include <stdio.h>

void swap(int*, int*);

int main()
{
  int a, b;

  printf("Enter a and b\n");
  scanf("%d%d",&a,&b);

  printf("Before Swapping a = %d b = %d\n", a, b);

  swap(&a, &b);

  printf("After Swapping a = %d b = %d", a, b);

  return 0;
}
```

```
void swap(int *c, int *d)
{
  int temp;

  temp = *d;
  *d = *c;
  *c = temp;
}
```

Output: