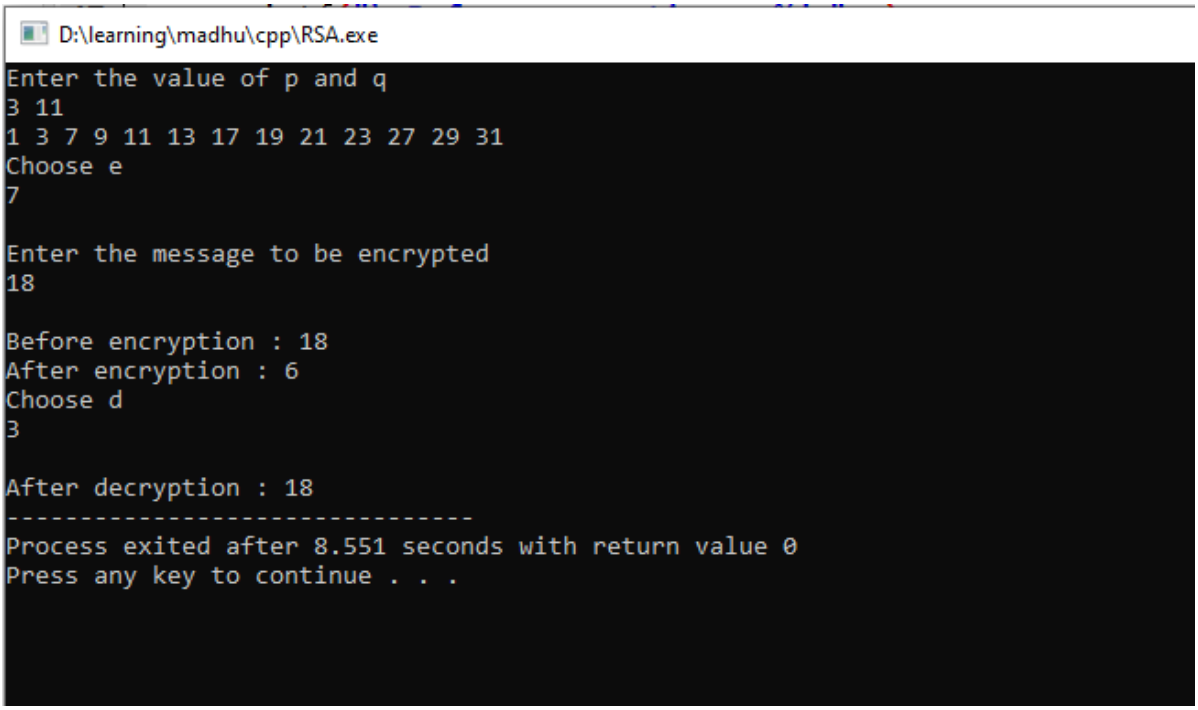
RSA algorithm

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

int gcd(int a, int b)
{
	if (a == 0)
		return b;
	return gcd(b%a, a);
}

int mod(int m, int e, int n)
{
	int x = 1;
	while(e)
	{
		x = (x*m)%n;
		e--;
	}
	return x;
}
int main()
{
	int p,q,n,e,m,c,d,x,z;
	int en[100], de[100], j = 0;
	printf("Enter the value of p and q\n");
	scanf("%d%d",&p,&q);
	n = p*q;
	z = (p-1)*(q-1);
	for (e = 1; e < n; e++)
	{
		if (gcd(e,z) == 1)
		{
			en[j] = e;
			printf("%d ", en[j]);
			j++;
		}
	}
	printf("\nChoose e \n");
```

```
        scanf("%d",&e);
        if (gcd(e,z) != 1)
        {
                printf("The value is not in the list\n");
                exit(0);
        }
        printf("\nEnter the message to be encrypted\n");
        scanf("%d", &m);
        printf("\nBefore encryption : %d ",m);
        c = mod(m,e,n);
        printf("\nAfter encryption : %d ",c);
        for (d = 0; d < n; d++)
        {
                if ((d%e) % z == 1)
                {
                        de[j] = d;
                        j++;
                }
        }
        printf("\nChoose d \n");
        scanf("%d",&d);
        x = mod(c,d,n);
        printf("\nAfter decryption : %d ",x);
        return 0;
}
```


D:\learning\madhu\cpp\RSA.exe
Enter the value of p and q
3 11
1 3 7 9 11 13 17 19 21 23 27 29 31
Choose e
7
Enter the message to be encrypted
18
Before encryption : 18
After encryption : 6
Choose d
3
After decryption : 18

Process exited after 8.551 seconds with return value 0
Press any key to continue . . .