WINTER SEMESTER 2016

CSE2003: DATA STRUCTURES AND ALGORITHMS (EMBEDDED LAB) SLOT:

L51+L52

FACULTY: THENDRAL.P

ASSIGNMENT-1

Name: VOLETI RAVI

1. Write a program to check whether the given no. has odd no. of odd digits or even no. of even digits. For example the number 21345 has two even numbers 2 and 4 and three odd numbers 1,3 and 5. Also print the digits and their positions.

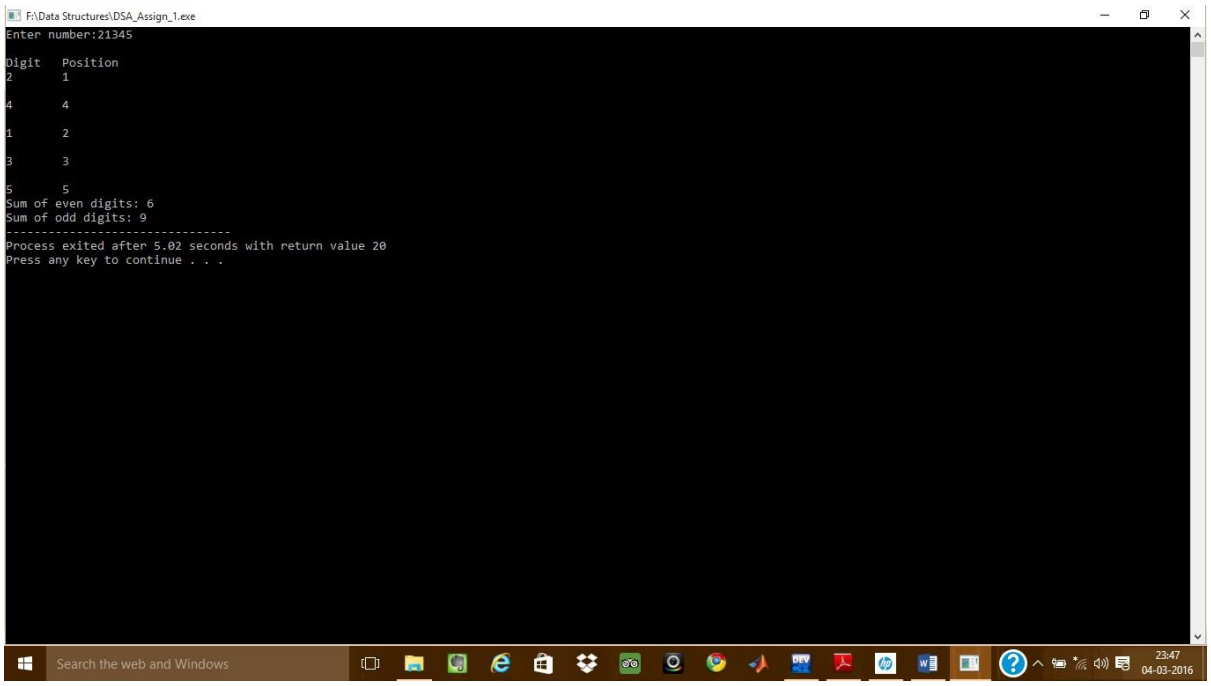
Code:

```
#include<stdio.h>
#include<string.h>
main(){
    char l[100];
    printf("Enter
    number:"); gets(l);
    int n=atoi(l);
    int odd[2][100];
    int even[2][100];
    int i=strlen(l)-1, j1=0, j2=0,pos=0;
    float y=n/1.0;
    while(i>=0){
        float x=pow(10,i);
        int z=y/x;
        if(z%2==0){
            even[0][j1]=z;
            even[1][j1]=pos+1;
        }
        else{   odd[0][j2]=z;
            odd[1][j2]=pos+1;
        }
```

```
                    if(even[0][j1]!=NULL)
                    j1=j1+1;

                    else
                    j1=j1;

                    if(odd[0][j2]!=NULL)
                    j2=j2+1;

                    else j2=j2;
                    y=y-z*x;
                    i=i-1;

                    pos=pos+1;

        }

        printf("\nDigit\tPosition");

        int i1=0,i2=0, sum_even=0, sum_odd=0;
        while(i1<strlen(l)){

                if(even[0][i1]>=0 && even[0][i1]<=9 && even[1][i1]<=strlen(l) &&
even[1][i1]>0){

                printf("\n%d\t",even[0][i1]);
                sum_even=sum_even+even[0][i1];
                printf("%d\n",even[1][i1]);

        }

                i1=i1+1;

        }

        while(i2<strlen(l)){

                if(odd[0][i2]>=0 && odd[0][i2]<=9 && odd[1][i2]<=strlen(l) &&

 odd[1][i2]>0){
                printf("\n%d\t",odd[0][i2]);
                sum_odd=sum_odd+odd[0][i2];
                printf("%d\n",odd[1][i2]);

        }
                i2=i2+1;

        }
```

```
        printf("Sum of even digits: %d\n",
        sum_even); printf("Sum of odd digits:
        %d", sum_odd);

}
```

OUTPUT:



2. Write a program to generate twin prime numbers between 1 and 100.(If the difference between successive prime numbers is 2 they are known as twin prime numbers. For example 3 and 5 are twin prime numbers).

Code:

```
#include<stdio.h>
int isPrime(int n){
        int
        count=
        0; int
        j=1;
        while(
        j<=n){
                if(n%j==
                0)
                count=co
                unt+1;
                j=j+1;
        }
                if(co
                unt>
                2)
                retur
```

```
                n(0);
                else
                retur
                n(1);
}
main(){
        int i=2;
        while(i
        <100){
                int
                check=isPrime
                (i);
                if(check==1){
                int j=i+2;
                int
                k=isPrime
                (j);
                if(k==1)
                printf("%d and %d\n", i, j);
        }
        i=i+1;
        }
}
```

Output: