Code :

```
#include <iostream>
using namespace std;

bool checkprime(int n){
	if (n<=1) return 0; //1 & 0 are not prime number

	if (n==2) return 1; //2 is a prime number

	for (int i=2; i<= (n/2); i++){
		if (n%i ==0) return 0; //not a prime hence false
	}
	return 1; //if the for loop is iterated completely, then its a prime
number hence true
}
int compute_zigzag_sum(int** matrix, int n){
	int sum=0;
	for (int d=0;d<=2*(n-1);d++){
		//d is the diagonal number, there are total of 2*n diagonals
in a nxn matrix

		if (d%2==0){
		//up-right
		int i= (d<n)?d:n-1;
		//initialise row value to current diagonal numberor else
boundary value
		int j=d-i; //here for each diagonal, d=i+j
		//sum of row and column number gives diagonal number
			while(i>=0 && j<n){
				int x= *(*(matrix+i)+j); //matrix[i][j]
				//pointer access for i-th row and j-th element
				sum += checkprime(x)? -x :x;
				i--;
				j++;
			//traverse through the diagonal in upward right
direction
```

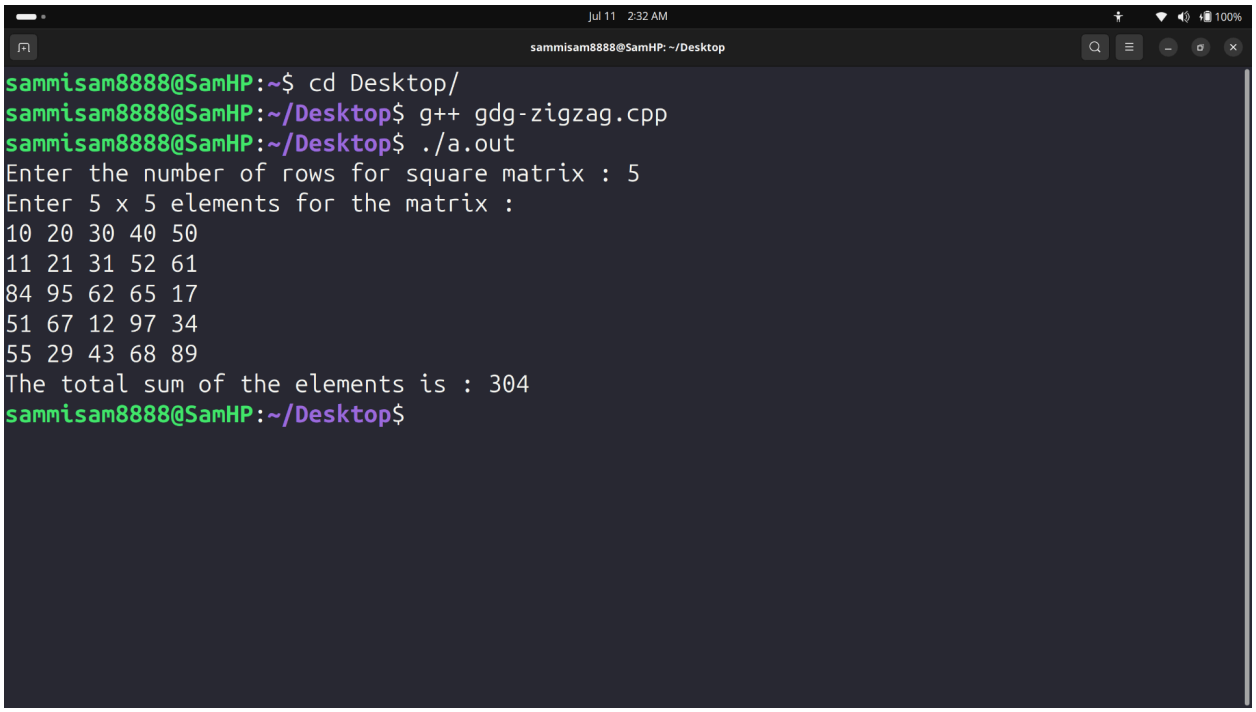
```
                }
            }
            else{
                //down-left
                int j=(d<n)?d:n-1;
                //initialise column to current diagonal or else
boundary value
                int i=d-j; //since d=i+j

                while(j>=0&&i<n){
                    int x= *(*(matrix+i)+j);
                    sum+= checkprime(x)?-x:x;
                    i++;
                    j--;
                    //traverse through the diagonal in downward left
direction
                }
            }
        }
        return sum;
}

int main (){
        int n;
        cout<<"Enter the number of rows for square matrix : ";
        cin>>n;
        int **matrix = new int*[n];
        //declare a 2d array with n rows

        for (int i=0; i<n;i++){
            matrix[i]=new int[n];
            //declare each row as an array of size n
        }

        cout<<"Enter "<<n<<" x "<<n<<" elements for the matrix :
"<<endl;
        for (int i=0;i<n;i++){
```

```
            for (int j=0;j<n;j++){
                cin>>*(*(matrix+i)+j);
                //this will take input for matrix [i][j]

            }
        }

        int sum = compute_zigzag_sum(matrix,n);
        cout<<"The total sum of the elements is : "<< sum<<endl;

        //free allocated memory space
        for (int i=0;i<n;i++){
            delete[] matrix[i];
        }
        delete [] matrix;


        return 0;
}
```

Code Screenshot :

```cpp

bool checkprime(int n){
    if (n<=1) return 0; //1 & 0 are not prime number

    if (n==2) return 1; //2 is a prime number

    for (int i=2; i<= (n/2); i++){
        if (n%i ==0) return 0; //not a prime hence false
    }
    return 1; //if the for loop is iterated completely, then its a prime number hence true
}
int compute_zigzag_sum(int** matrix, int n){
    int sum=0;
    for (int d=0;d<=2*(n-1);d++){
        //d is the diagonal number, there are total of 2*n diagonals in a nxn matrix

        if (d%2==0){
        //up-right
        int i= (d<n)?d:n-1;
        //initialise row value to current diagonal numberor else boundary value
        int j=d-i; //here for each diagonal, d=i+j
        //sum of row and column number gives diagonal number
            while(i>=0 && j<n){
                int x= *(*(matrix+i)+j); //matrix[i][j]
                //pointer access for i-th row and j-th element
                sum += checkprime(x)? -x :x;
                i--;
                j++;
            //traverse through the diagonal in upward right direction
            }
        }
        else{
            //down-left
            int j=(d<n)?d:n-1;
            //initialise column to current diagonal or else boundary value
            int i=d-j; //since d=i+j

            while(j>=0&&i<n){
                int x= *(*(matrix+i)+j);
                sum+= checkprime(x)?-x:x;
                i++;
                j--;
                //traverse through the diagonal in downward left direction
            }
        }
    }
    return sum;
}

int main (){
    int n;
```

Code Output :



Github Repository Link :

https://github.com/Sammisam8888/GDG-BBSR-2025-Submission