PF LAB 11 TASKS

Name: Muhammad Danish
Roll no: 22K-4381
Section: 1D

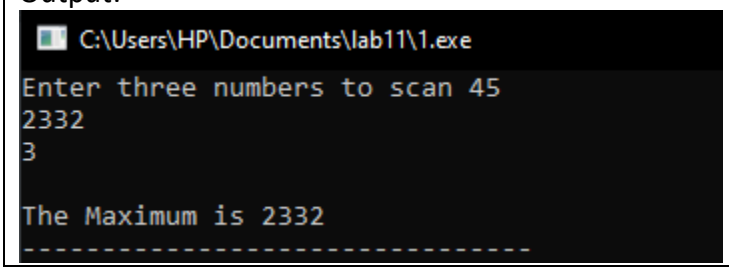
Task 01

Write a program to find out the greatest and the smallest among three numbers using pointers.

Program:

```
#include <stdio.h>
//program to find the greatest and smallest among three numbers
int main()
{
	int a, b , c;

	int *ptr1=&a, *ptr2=&b, *ptr3=&c;

	printf("Enter three numbers to scan ");
	scanf("%d %d %d", ptr1, ptr2, ptr3);

	int *max=ptr1;


		if (*ptr2>*max)
		max= ptr2;

		if (*ptr3>*max)
		max= ptr3;

	printf("\nThe Maximum is %d", *max);

}
```

Output:

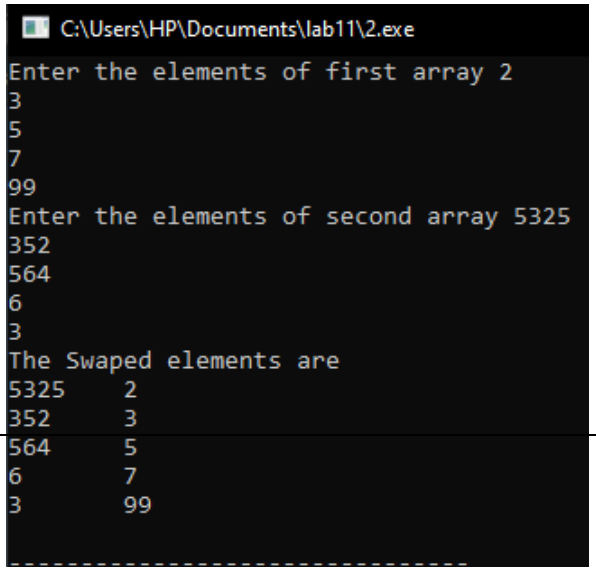


Task 02

Write a C program to swap corresponding elements of two arrays using pointers.

```
#include <stdio.h>
int main()
{
	int a[5];
	int b[5];
	int i;
	int *ptr1=a, *ptr2=b;

	printf("Enter the elements of first array ");
	for (i=0; i<5; i++)
		scanf("%d", ptr1+i);

	printf("Enter the elements of second array ");
	for (i=0; i<5; i++)
		scanf("%d", ptr2+i);

	int temp;

	for (i=0; i<5; i++)
	{
		temp=*(ptr1+i);
		*(ptr1+i)=*(ptr2+i);
		*(ptr2+i)=temp;
	}
	printf("The Swaped elements are \n");
	for (i=0; i<5; i++)
	{
		printf("%d\t%d\n", *(ptr1++), *(ptr2++));
	}

}
```

Output:



Task 03

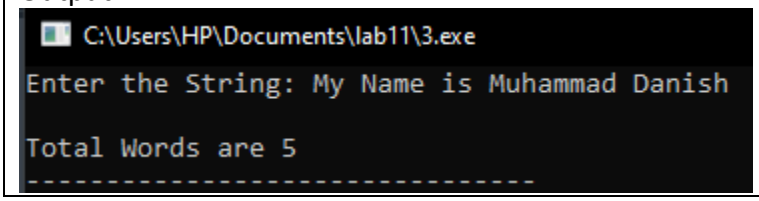
Write a program that implements the function(WordCount).

int WordCount(char *Text, int *size);

Program:

```
#include <stdio.h>
#include <string.h>
//program to find total number of words in a string
int wordcount(char *text, int *l)
{
	int words=0;
	int i;
	for (i=0; i<=*l; i++)
	{
		if (*(text+i)==' ' || (*(text+i)=='\0'))
		words++;
	}
	printf("\nTotal Words are %d", words);
}

int main()
{
	char a[100];
	printf("Enter the String ");
	scanf(" %[^\n]", a);

	int l= strlen(a);
	int *size=&l;

	wordcount(a, size);

}
```

Output:



Task 04

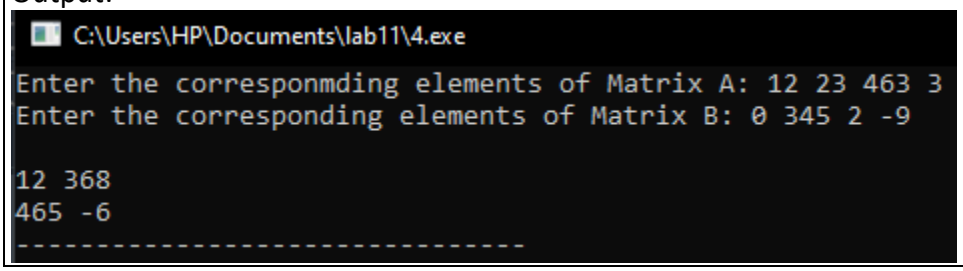
Write a C program to add two matrices using pointers. Create a function called calMat() that take pointers of 2 matrices as arguments and return the resulted sum and display it in main.

Program:

```
#include <stdio.h>
#include <string.h>
//program for addition of two matrices
void *sum(int *a, int *b)
{
	int arr[2][2];
	int *c= &arr[0][0];
	int i;

	for (i=0; i<4; i++)
	{
		*(c+i)= *(a+i)+*(b+i);
	}

		for (i=0; i<4; i++)
		{
			if (i%2==0)
				printf("\n");

			printf("%d ", *(c+i));
		}
}

int main()
{
	int a[2][2], b[2][2];

	int i, j;

		printf("Enter the corresponmding elements of Matrix A: ");
	for (i=0; i<2; i++)
	{
		for(j=0; j<2; j++)
			scanf("%d", &a[i][j]);
	}
		printf("Enter the corresponding elements of Matrix B: ");
```

```
        for (i=0; i<2; i++)
        {
                for(j=0; j<2; j++)
                        scanf("%d", &b[i][j]);
        }

        int *ptr1=&a[0][0];
        int *ptr2=&b[0][0];
        sum(ptr1, ptr2);

}
```

Output:



Task 05

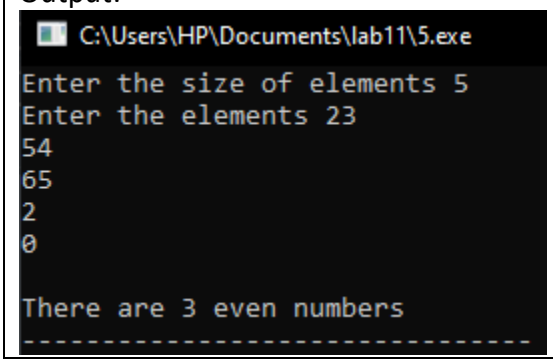
Write a function countEven(int*, int) which receives an integer array and its size, and returns the number of even numbers in the array.

Program:

```
#include <stdio.h>

counteven(int *arr, int num)
{
        int i, even=0;
        for (i=0; i<num; i++)
        {
                if (*(arr+ i) %2 == 0)
                        even++;
        }
        printf("\nThere are %d even numbers", even);
}

int main()
{
        int size;
        printf("Enter the size of elements ");
        scanf("%d", &size);

        int a[size];
```

```
        printf("Enter the elements ");
        int i;
        for (i=0; i<size; i++)
        {
                scanf("%d", &a[i]);
        }

        counteven(a, size);

}
```

Output:



Task 06

Write a program that implements the SortFunction that takes argument pointer to an array, size of the array and the
order in which it is going to be sort. Such as, 1 for Asscending order and 2 for Descending orde. Finally, print this
array in Main() to check.

```
void SortFunction(int *arr, int *size, int order);
```

Program:

```
#include <stdio.h>
//progrram to sort the array
void sortfunc(int *arr, int *size, int a)
{
        int temp;

        if (a==1)
        {
                for (int i=0; i<*(size); i++)
                {
                        for (int j=0; j<*(size)-1; j++)
                        {
```

```
                                if(*(arr+j)>*(arr+j+1))
                                {
                                        temp=*(arr+j);
                                        *(arr+j)=*(arr+j+1);
                                        *(arr+j+1)=temp;
                                }
                        }
                }
        }

        if (a==2)
        {
                for (int i=0; i<*(size); i++)
                {
                        for (int j=0; j<*(size)-1; j++)
                        {
                                if (*(arr+j)<*(arr+j+1))
                                {
                                        temp=*(arr+j);
                                        *(arr+j)=*(arr+j+1);
                                        *(arr+j+1)=temp;
                                }
                        }
                }
        }

        printf("The order is: ");
        for (int i=0 ; i< *(size); i++)
        {
                printf("%d ", *(arr++));
        }

}

int main()
{
        int size;
        printf("Enter the size of array ");
        scanf("%d", &size);

        int a[size];
        int i;

        printf("Enter the numbers: ");
```

```
        for (i=0; i<size; i++)
        {
                scanf("%d", &a[i]);
        }
        int order;
        printf("Enter the order you want, 1 for ascending and 2 for descending ");
        scanf("%d", &order);

        sortfunc(a, &size, order);
}
```

Output: