Practical File

Of

Course Code: CSEG1041
School of Computer Science

Submitted By: Submitted To:
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Course:B.Sc(Computer Science)
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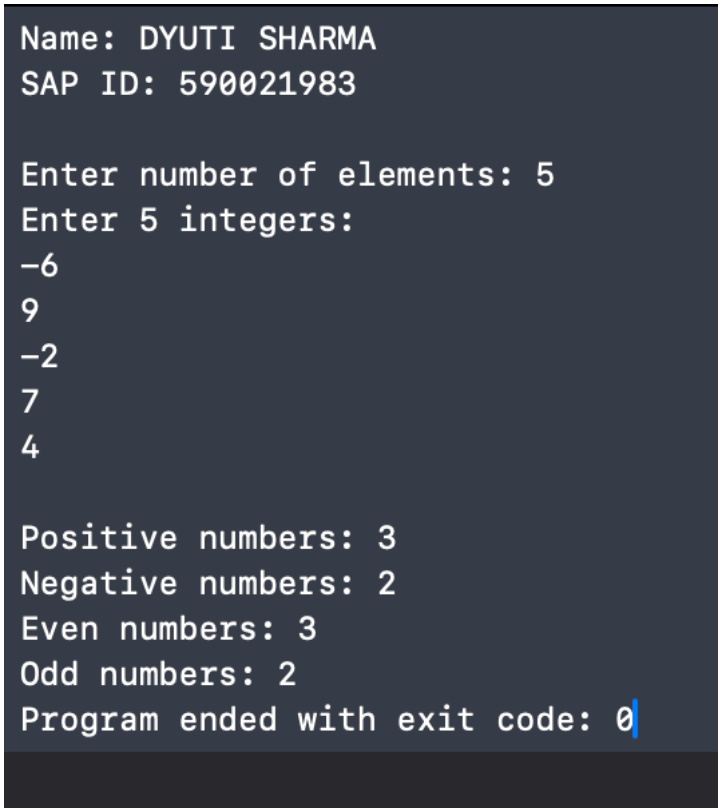
```c
// 6.1 WAP to read a list of integers and store it in a single dimensional array.
// Write a C program to print the second largest integer in a list of integers.

#include <stdio.h>

int main() {
    printf("Name: DYUTI SHARMA\nSAP ID: 590021983\n\n");

    int n, i, largest, second;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];

    printf("Enter %d integers:\n", n);
    for(i = 0; i < n; i++)
        scanf("%d", &arr[i]);

    largest = second = -2147483648; // Minimum integer value

    for(i = 0; i < n; i++) {
        if(arr[i] > largest) {
            second = largest;
            largest = arr[i];
        } else if(arr[i] > second && arr[i] != largest) {
            second = arr[i];
        }
    }

    if(second == -2147483648)
        printf("There is no second largest element.\n");
    else
        printf("Second largest element: %d\n", second);

    return 0;
}
```

OUTPUT:

```
Name: DYUTI SHARMA
SAP ID: 590021983

Enter number of elements: 4
Enter 4 integers:
6
-7
9
8
Second largest element: 8
Program ended with exit code: 0
```

```c
// 6.2 WAP to read a list of integers and store it in a single dimensional array.
// Write a C program to count and display positive, negative, odd, and even numbers in an array.

#include <stdio.h>

int main() {
    printf("Name: DYUTI SHARMA\nSAP ID: 590021983\n\n");

    int n, i;
    int pos = 0, neg = 0, even = 0, odd = 0;

    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];

    printf("Enter %d integers:\n", n);
    for(i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
        if(arr[i] > 0) pos++;
        else if(arr[i] < 0) neg++;
        if(arr[i] % 2 == 0) even++;
        else odd++;
    }

    printf("\nPositive numbers: %d\n", pos);
    printf("Negative numbers: %d\n", neg);
    printf("Even numbers: %d\n", even);
    printf("Odd numbers: %d\n", odd);

    return 0;
}
```

OUTPUT:


Name: DYUTI SHARMA
SAP ID: 590021983
Enter number of elements: 5
Enter 5 integers:
-6
9
-2
7
4
Positive numbers: 3
Negative numbers: 2
Even numbers: 3
Odd numbers: 2
Program ended with exit code: 0

```c
// 6.3 WAP to read a list of integers and store it in a single dimensional array.
// Write a C program to find the frequency of a particular number in a list of integers.

#include <stdio.h>

int main() {
    printf("Name: DYUTI SHARMA\nSAP ID: 590021983\n\n");

    int n, i, num, count = 0;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];

    printf("Enter %d integers:\n", n);
    for(i = 0; i < n; i++)
        scanf("%d", &arr[i]);

    printf("Enter number to find frequency: ");
    scanf("%d", &num);

    for(i = 0; i < n; i++)
        if(arr[i] == num)
            count++;

    printf("Frequency of %d = %d\n", num, count);

    return 0;
}
```

OUTPUT:

```
Name: DYUTI SHARMA
SAP ID: 590021983

Enter number of elements: 3
Enter 3 integers:
8
-8
6
Enter number to find frequency: -8
Frequency of -8 = 1
Program ended with exit code: 0
```

```c
// 6.4 WAP that reads two matrices A (m x n) and B (p x q) and
computes the product A and B.
// Read matrix A and matrix B in row major order respectively.
// Print both the input matrices and resultant matrix with
suitable headings.
// Program must check compatibility of orders for multiplication.

#include <stdio.h>

int main() {
    printf("Name: DYUTI SHARMA\nSAP ID: 590021983\n\n");

    int m, n, p, q, i, j, k;

    printf("Enter order of Matrix A (m n): ");
    scanf("%d %d", &m, &n);
    printf("Enter order of Matrix B (p q): ");
    scanf("%d %d", &p, &q);

    if(n != p) {
        printf("\nMatrix multiplication not possible! (n != p)
\n");
        return 0;
    }

    int A[m][n], B[p][q], C[m][q];

    printf("\nEnter elements of Matrix A (%d x %d):\n", m, n);
    for(i = 0; i < m; i++)
        for(j = 0; j < n; j++)
            scanf("%d", &A[i][j]);

    printf("\nEnter elements of Matrix B (%d x %d):\n", p, q);
    for(i = 0; i < p; i++)
        for(j = 0; j < q; j++)
            scanf("%d", &B[i][j]);

    // Initialize result matrix
    for(i = 0; i < m; i++)
        for(j = 0; j < q; j++)
            C[i][j] = 0;

    // Multiplication
    for(i = 0; i < m; i++)
        for(j = 0; j < q; j++)
            for(k = 0; k < n; k++)
                C[i][j] += A[i][k] * B[k][j];

    printf("\nMatrix A:\n");
    for(i = 0; i < m; i++) {
```

```
        for(j = 0; j < n; j++)
            printf("%4d", A[i][j]);
        printf("\n");
    }

    printf("\nMatrix B:\n");
    for(i = 0; i < p; i++) {
        for(j = 0; j < q; j++)
            printf("%4d", B[i][j]);
        printf("\n");
    }

    printf("\nResultant Matrix (A x B):\n");
    for(i = 0; i < m; i++) {
        for(j = 0; j < q; j++)
            printf("%4d", C[i][j]);
        printf("\n");
    }

    return 0;
}
```

OUTPUT:

```
Name: DYUTI SHARMA
SAP ID: 590021983

Enter order of Matrix A (m n): 2 3
Enter order of Matrix B (p q): 3 2

Enter elements of Matrix A (2 x 3):
1 2 3
4 5 6

Enter elements of Matrix B (3 x 2):
7 8
9 10
11 12

Matrix A:
   1   2   3
   4   5   6

Matrix B:
   7   8
   9  10
  11  12

Resultant Matrix (A x B):
  58  64
 139 154
Program ended with exit code: 0
```