Ganpat University
Faculty of Engineering & Technology
Computer Science & Engineering

Practical_2

Name:- ***Dwij Vatsal Desai***
Sem:- ***3***
Sub: - ***DS(Data Steucture)***
Enrollment No.:- ***23162121027***

2.1 Calculator

Write a program that asks the user to enter two numbers, obtains them from the user and prints their sum, product, difference, quotient and remainder.

Code:

```c
#include <stdio.h>

int main(){

    int a,b,sum,product,difference,quotient,remainder;
    int choice;

    printf("Enter 2 Value:\t");
    scanf("%d %d",&a,&b);

    printf("\nChoice your preference:\n");
    printf("1) Sum\n");
    printf("2) Product\n");
    printf("3) Difference\n");
    printf("4) Quotient\n");
    printf("5) Remainder\n");
    scanf("%d",&choice);

    switch (choice)
      {

        case 1:
            sum = a+ b;
```

```
            printf("Sum = %d",sum);
        break;

        case 2:
            product = a* b;
            printf("Product = %d",product);
        break;

        case 3:
            difference = a - b;
            printf("Difference = %d",difference);
        break;

        case 4:
            quotient = a / b;
            printf("Quotient = %d",quotient);
        break;

        case 5:
            remainder = a % b;
            printf("Remainder = %d",remainder);
        break;

        default:
            printf("\n\nERROR:Wrong entered number");
        break;
    }

    return 0;
}
```

Image:

```
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS> cd "c:\Users\dwijd\O
Enter 2 Value:  23 43

Choice your preference:
1) Sum
2) Product
3) Difference
4) Quotient
5) Remainder
5
Remainder = 23
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS\Practical_2>
```

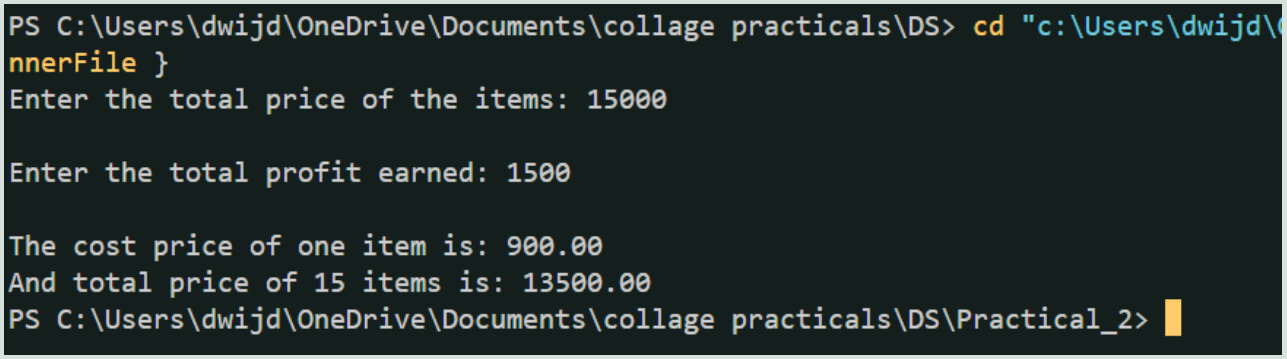
2.2 Cost Price Problem

Suppose, a user enters the total selling price of 15 items and the profit earned on the total. Write a program to find out the cost price of one item.

Code:

```c
#include <stdio.h>

int main(){

    float Tprice,Tprofit,Tprice_item,price_item;

    printf("Enter the total price of the items: ");
    scanf("%f",&Tprice);

    printf("\nEnter the total profit earned: ");
    scanf("%f",&Tprofit);

    Tprice_item = Tprice - Tprofit;
    price_item = Tprice_item / 15;

    printf("\nThe cost price of one item is: %.2f\n", price_item);
    printf("And total price of 15 items is: %.2f",Tprice_item);

    return 0;
}
```

Image:



2.3 Separating Digits in an Integer

Write a program that inputs one five-digit number, separates the number into its individual digits and prints the digits separated from one another by three spaces each. [Hint: Use combinations of integer division and the remainder operation.] For example, if the user types in 42139, the program should print

Output: 4 2 1 3 9

Code:

```c
#include <stdio.h>

int main(){

    int Digi5=0,digi[5];

    printf("Enter the five-digit number:\t");
    scanf("%d",&Digi5);

    if (Digi5 >= 10000 && Digi5<=99999)
    {
        for (int i = 0; i < 5; i++) {
            digi[4- i] = Digi5 % 10;
            Digi5 /= 10;
        }
        printf("Digits: ");
        for (int i = 0; i < 5; i++) {
            printf("%d ", digi[i]);
        }
        printf("\n");
    }else{
        printf("\n\nERROR:Entered number is not five-digit long");
    }

    return 0;
}
```

Image:

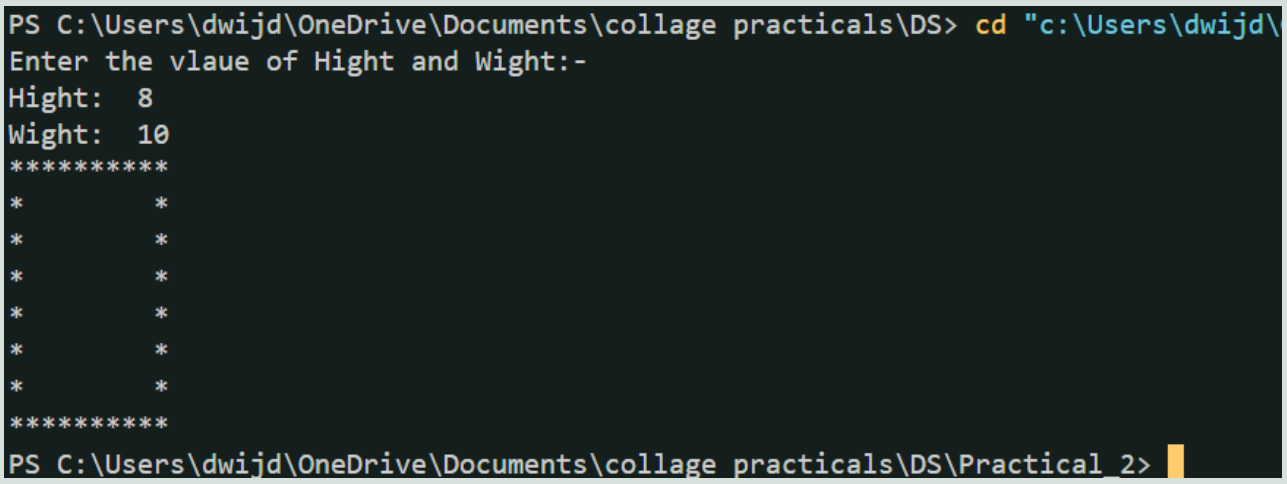
```
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS> cd "c:\Users\dwijd\(
Enter the five-digit number:    12321
Digits: 1 2 3 2 1
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS\Practical_2>
```

2.4 Shapes with Asterisks Write a program that prints the following shapes with asterisks.

Code-1:

```c
// Q-1

#include <stdio.h>

int main(){

    int hight,wight;

   printf("Enter the vlaue of Hight and Wight:- \n");
   printf("Hight:\t"); scanf("%d",&hight);
   printf("Wight:\t"); scanf("%d",&wight);

    for(int i=0;i<hight;i++)
    {
        for (int j = 0; j < wight; j++)
        {
            if (i==0 || i==hight-1 || j==0 || j==(wight-1))
            {
                printf("*");
            }else{
                printf(" ");
            }
        }
        printf("\n");
    }

    return 0;
}
```

Image:



Code-2:

```c
//Q-2

#include <stdio.h>

int main() {
    int n = 5;

    for (int i = 0; i < 2 * n - 1; i++) {
        int spaces = n - 1 - (i < n ? i : 2 * n - 2 - i);
        int stars = 2 * (i < n ? i : 2 * n - 2 - i) + 1;

        for (int j = 0; j < spaces; j++){
            printf(" ");
        }
        for (int j = 0; j < stars; j++){
            printf(j == 0 || j == stars - 1 ? "*" : " ");
        }
        printf("\n");
    }

    return 0;
}
```

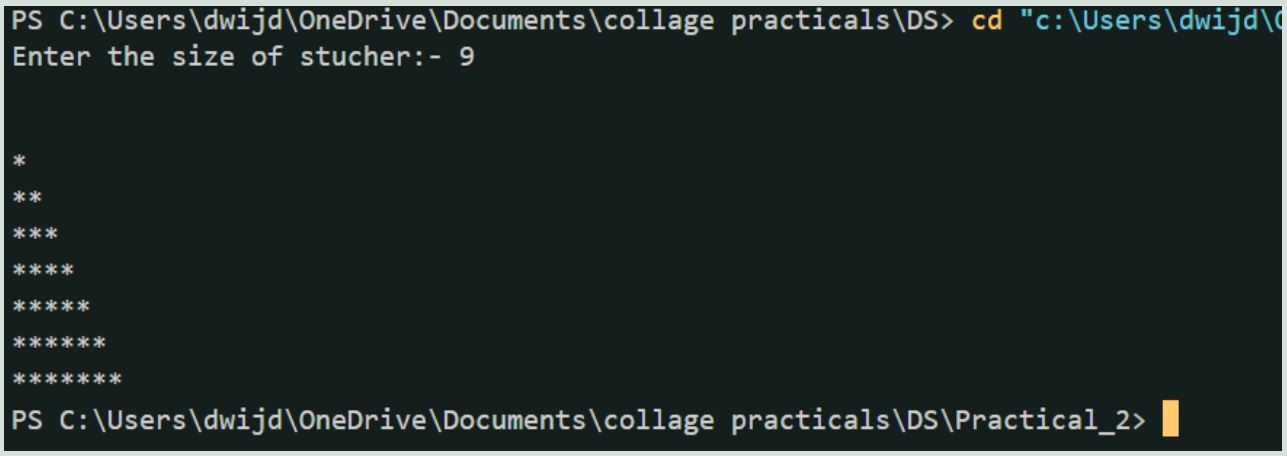
Image:

```
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS> cd "c:\Users\dwijd\
    *
   * *
  *   *
 *     *
*       *
 *     *
  *   *
   * *
    *
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS\Practical_2>
```

Code-3:

```c
//Q-3

#include <stdio.h>

int main(){

    int size=0;

    printf("Enter the size of stucher:- ");
    scanf("%d",&size);

    for (int i = 0; i < size; i++)
    {
        for (int j = 1; j < i; j++)
        {
            printf("*");
        }
        printf("\n");
    }
    return 0;

}
```

Image:


PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS> cd "c:\Users\dwijd\
Enter the size of stucher:- 9
*
**
***
****
*****
******
****
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS\Practical_2>

2.5 Diameter, Circumference and Area of a Circle Write a program that reads in the radius of a circle and prints the circle's diameter, circumference and area. Use the constant value 3.14159 for π.

Code:

```c
//Q-3
#include <stdio.h>

int main(){

    float radius,diameter,circumference,area,pi=3.14159;

    printf("Enter the value of Radius: ");
    scanf("%f",&radius);

    diameter = radius* radius;

    circumference = 2* radius* pi;

    area = pi* radius* radius;

    printf("\nOutput:-\n");
    printf("Diameter: %.4f\n",diameter);
    printf("Circumference: %.4f\n",circumference);
    printf("Area: %.4f\n",area);

    return 0;
}
```

Image:

```
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS> cd "c:\Users\dwijd\
Enter the value of Radius: 34

Output:-
Diameter: 1156.0000
Circumference: 213.6281
Area: 3631.6782
PS C:\Users\dwijd\OneDrive\Documents\collage practicals\DS\Practical_2>
```