Name: *Krithika Swaminathan*
Roll No.: *205001057*

Date: 17/05/2021

Exercise 1

1. Simple Calculator

Aim:

To add, subtract, multiply and divide two numbers by getting inputs from the user.

Code:

```c
//to add, subtract, multiply and divide two numbers by getting input from the user
#include<stdio.h>

int main(void){
  int a,b, sum, diff, prod, quo, rem;
  //input
  printf("Enter two numbers: ");
  scanf("%d %d", &a, &b);
  //calculating
  sum=a+b;
  diff=a-b;
  prod=a*b;
  quo=a/b;
  rem=a%b;
  //result
  printf("Sum: %d", sum);
  printf("\nDiff: %d", diff);
  printf("\nProduct: %d", prod);
  printf("\nQuotient: %d Remainder: %d \n", quo, rem);

  return 0;
}
```

Output:

```
> ./q1.out
Enter two numbers: 20 6
Sum: 26
Diff: 14
Product: 120
Quotient: 3 Remainder: 2
```

Result:

A program for performing basic arithmetic operations is written and executed.

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Exercise 1

2. Swapping two numbers

Aim:

To swap the values of two variables using a temporary variable.

Code:

```c
//to swap the values of two variables using a temp variable
#include<stdio.h>

int main(void){
  int a,b, temp;
  //input
  printf("Enter two numbers: ");
  scanf("%d %d", &a, &b);
  printf("First: %d Second: %d", a, b);
  //swapping
  temp=a;
  a=b;
  b=temp;
  //result
  printf("\nFirst: %d Second: %d \n", a, b);

  return 0;
}
```

Output:

```
> ./q2.out
Enter two numbers: 23 71
First: 23 Second: 71
First: 71 Second: 23
```

Result:

A program for swapping two numbers is written and executed.

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Exercise 1

3. Last digit of an Integer

Aim:

To print the last digit of an integer.

Code:

```c
//to print the last digit of an integer
#include<stdio.h>

int main(void){
  int num;
  //input
  printf("Enter an integer: ");
  scanf("%d", &num);

  //result
  printf("The last digit is %d.\n", num%10);

  return 0;
}
```

Output:

```
> ./q3.out
Enter an integer: 345
The last digit is 5.
```

Result:

A program for finding the last digit of an integer is written and executed.

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Exercise 1

4. Total and Average Marks

Aim:

To get the marks for five subjects and to compute the total and average.

Code:

```c
//to get the marks for 5 subjects and compute total and average
#include<stdio.h>

int main(void){
  int m1, m2, m3, m4, m5, total;
  float avg;
  //input
  printf("Enter marks for 5 subjects: ");
  scanf("%d %d %d %d %d", &m1, &m2, &m3, &m4, &m5);
  //calculating
  total=m1+m2+m3+m4+m5;
  avg=total/5;
  //result
  printf("Total: %d Second: %f \n", total, avg);

  return 0;
}
```

Output:

```
> ./q4.out
Enter marks for 5 subjects: 99 98 82 94 100
Total: 473 Second: 94.000000
```

Result:

A program to compute the total and average of the marks for five subjects is written and executed.

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Exercise 1

5. Area of Rectangle, Triangle and Circle

Aim:

To find the area of a rectangle, a triangle and a circle by getting inputs from the user.

Code:

```c
//to find the areas of rectangle, triangle and circle by getting inputs from the user
#include <stdio.h>
#include <math.h>

int main(void){
  float l, b, x, y, z, s, h, r;

  //rectangle
  printf("Rectangle - Enter length and breadth: ");
  scanf("%f %f", &l, &b);
  printf("Area: %f\n", l*b);

  //triangle
  printf("Triangle - Enter lengths of sides: ");
  scanf("%f %f %f", &x, &y, &z);
  s=(x+y+z)/2;
  h=s*(s-x)*(s-y)*(s-z);
  printf("Area: %g\n", sqrt(h));

  //circle
  printf("Circle - Enter radius: ");
  scanf("%f", &r);
  printf("Area: %f\n", 3.14*r*r);

  return 0;
}
```

Output:

```
> gcc q5.c -lm
> ./q5.out
Rectangle - Enter length and breadth: 2 3
Area: 6.000000
Triangle - Enter lengths of sides: 3 4 5
Area: 6
Circle - Enter radius: 2
Area: 12.560000
```

Result:

A program for computing the areas of a rectangle, a triangle and a circle is written and executed.

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Exercise 1

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6. Evaluating an Expression

Aim:

To get values for a, b, c and d from the user and evaluate the expression a*b+c^d.

Code:

```c
//to calculate the value of the expression by getting input from the user
#include <stdio.h>
#include <math.h>

int main(void){
  int a,b, c, d;
  float res;
  //input
  printf("Enter 4 numbers: ");
  scanf("%d %d %d %d", &a, &b, &c, &d);
  //calculating
  res=a*b+pow(c,d);
  //result
  printf("Result: %f\n", res);

  return 0;
}
```

Output:

```
> ./q6.out
Enter 4 numbers: 1 1 1 1
Result: 2.000000
```

Result:

A program to evaluate the given expression is written and executed.

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Exercise 1

7. Simple Interest

Aim:

To calculate the simple interest by getting appropriate inputs from the user.

Code:

```c
//to calcualte simple interest
#include <stdio.h>

int main(){
  float p,n,r,SI,amt;
  //input
  printf("Enter values of P, N and R: ");
  scanf("%f %f %f", &p, &n, &r);
  //calculation
  SI=(p*n*r)/100;
  amt=p+SI;
  //result
  printf("Simple interest: %f Amount: %f\n", SI, amt);

  return 0;
}
```

Output:

```
> ./q7.out
Enter values of P, N and R: 1000 2 4
Simple interest: 80.000000 Amount: 1080.000000
```

Result:

A program to calculate the simple interest is written and executed.

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Exercise 1

8. Net pay

Aim:

To find the net salary of an employee by getting the basic pay as input.

Code:

```c
//to find the net pay of an employee given the basic pay as input
#include <stdio.h>

int main(){
  float bp, da, hra, cca, ins, pf, gp, ded, np;
  //input
  printf("Enter value of Basic Pay: ");
  scanf("%f", &bp);
  //calculation
  da=0.88*bp;
  hra=0.08*bp;
  cca=1000;
  ins=2000;
  pf=0.1*bp;
  gp=bp+da+hra+cca;
  ded=ins+pf;
  np=gp-ded;
  //result
  printf("Net pay: %f\n", np);

  return 0;
}
```

Output:

```
> ./q8.out
Enter value of Basic Pay: 1000
Net pay: 860.000000
```

Result:

A program to calculate the net salary of an employee is written and executed.