

**computational physics**

**ASSIGNMENT**

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GitHub Repository :- <https://github.com/Ahsan687/LocalRepo/tree/main>

**PROGRAMME-1**

/\* PROGRAMME\_1 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\*simple interest calculation\*/

#include <stdio.h>

int main()

{

    int P,T ;

    float R,Si ;

        P = 1000 ;

        T = 2 ;

        R = 3.5 ;

        Si = (P\*T\*R)/100 ;

printf ("simple interest is = Rs %f" , Si) ;

return 0;

}

**PROGRAMME-2**

/\* PROGRAMME\_2 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\* simple interest calculation input from user\*/

#include <stdio.h>

int main()

{

    int P, T;

    float R, Si;

    printf("Enter the value of P");

    scanf("%d", &P);

    printf("Enter the value of T");

    scanf("%d", &T);

    printf("Enter the value of R");

    scanf("%f", &R);

    Si = (P \* T \* R) / 100.0;

    printf("Si = Rs %f", Si);

    return 0;

}

**PROGRAMME-3**

/\* PROGRAMME\_3 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\*sum of two numbers\*/

#include <stdio.h>

#include <stdlib.h>

int main()

{

    float x, y, z ;      /\*this is deceleration statement\*/

        printf("enter the ist number");

        scanf("%f",&x);

        printf("enter the 2nd number");

        scanf("%f", &y);

        z = (x + y);

        printf("sum is = %f" , z);

     system("pause");

    return 0;

}

**PROGRAMME-4**

/\* PROGRAMME\_4 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\*sum of N numbers\*/

#include <stdio.h>

int main()

{

    int n, i;

    float num, sum = 0.0;

    printf("Enter the number of elements: ");

    scanf("%d", &n);

    // Read and sum 'n' numbers

    for (i = 1; i <= n; ++i) {

        printf("Enter number %d: ", i);

        scanf("%f", &num);

        sum += num;

    }

    printf("Sum = %.2f\n", sum);

    return 0;

}

**PROGRAMME-5**

/\* PROGRAMME\_5 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\*pass of fail\*/

#include <stdio.h>

int main()

{

    float P;

    printf("Enter %% of marks: ");

    scanf("%f", &P);

    if (P >= 50.0)

        printf("Pass\n");

    else

        printf("Fail\n");

    return 0;

}

**PROGRAMME-6**

/\* PROGRAMME\_6 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\* calculate cost of product\*/

#include <stdio.h>

int main()

{

    int qty, dic;       //deceleration

    float P, total;

        printf("Enter the price p: ");      // assignment

        scanf("%f", &P);

        printf("Enter discount: ");    // assignment

        scanf("%d", &dic);

        printf("Enter the quantity: ");     // assignment

        scanf("%d", &qty);

    if (qty > 1000)

    {

        total = (P \* qty) - (dic / 100.0) \* (P \* qty);

        printf("Total cost = Rs %.2f\n", total);      //.2%f will give the output upto two decimal places

    }

    else

    {

        total = P \* qty;

        printf("Total cost is = Rs %.2f\n", total);

    }

return 0;

}

**PROGRAMME-7**

/\* PROGRAMME\_7 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\* Nested if loop \*/

#include <stdio.h>

#include <math.h>

int main()

{

float a, b, c, d ,X1 , X2 ;

    printf("Enter the value of a:");

    scanf("%f", &a);

    printf("Enter the value of b:");

    scanf("%f", &b);

    printf("Enter the value of c:");

    scanf("%f", &c);

        d = (b\*b) - (4 \* a \* c);

    if (d<0)

        printf("Real roots does not exist");

    else

        {

        if (d == 0)

        {

        printf("only one root exsist");

            X1 = -b / (2\*a);

        printf("Root=%f", X1);

        }

        else

        {

            printf("two roots exists \n"); // \n is used to break the line

                X1 = (-b + pow(d,0.5))/(2\*a) ;

                X2 = (-b - pow(d,0.5))/(2\*a) ;

        printf("Root\_1 is X1 =  %f", X1);

        printf("\n Root\_2 is X2 = %f", X2);

        }

        }

    return 0;

}

**PROGRAMME-8**

/\* PROGRAMME\_8 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\* nested if  \*/

// problem  given is

// total marks = 400

// subjects = physics, chemistry, math , English

// if % of marks >= 60 then give Ist division

// if % of marks 59-50 then give 2nd division

// if % of marks 49-40 then give 3rd division

// if % of marks < 40 then fail

#include <stdio.h>

#include <stdlib.h>

int main()

{

    float P, C, M, E, per;

    printf("Enter marks of Physics: ");

    scanf("%f", &P);

    printf("Enter marks of Chemistry: ");

    scanf("%f", &C);

    printf("Enter marks of Math: ");

    scanf("%f", &M);

    printf("Enter marks of English: ");

    scanf("%f", &E);

    per = ((P + C + M + E) / 400) \* 100;

    if (per >= 60)

        printf("Ist division");

    else

        {

            if (per > 50)

                printf("2nd division");

            else

            {

                if (per >= 40)

                    printf("3rd division");

                else

                    printf("fail");

            }

        }

        system("pause");

    return 0;

}

**PROGRAMME-9**

/\* PROGRAMME\_9 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\* nested if  \*/

// problem  given is

// total marks = 400

// subjects = physics, chemistry, math , English

// if % of marks >= 60 then give Ist division

// if % of marks 59-50 then give 2nd division

// if % of marks 49-40 then give 3rd division

// if % of marks < 40 then fail

#include <stdio.h>

int main()

{

    float P, C, M, E, per;

    printf("Enter marks of Physics: ");

    scanf("%f", &P);

    printf("Enter marks of Chemistry: ");

    scanf("%f", &C);

    printf("Enter marks of Math: ");

    scanf("%f", &M);

    printf("Enter marks of English: ");

    scanf("%f", &E);

    per = ((P + C + M + E) / 400) \* 100;

    if (per >= 60)

    {

        printf("Ist division");

    if (per >= 50 && per < 60)

        printf("2nd division");

     if (per >= 40 && per < 50)

        printf("3rd division");

     if (per < 40)

        printf("Fail");

    return 0;

}

**PROGRAMMEME-10**

/\* PROGRAMME\_10 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

/\* use of logical OR ( || )\*/

// PROGRAMME in which a company has to give insurances to a driver //

// conditions are as insurances will be given if

// a) Driver is married. b) driver is unmarred male and above 30 years. C) driver is unmarred female and above 25 years

# include <stdio.h>

int main ()

{

    int age ;

    char gen , ms ;

    printf("Enter the age of driver:");

    scanf("%d",& age);

    printf("Enter the gender of the driver:");

    //to read characters, it leaves the newline character ('\n') in the input buffer from the previous scanf().

    //This causes the second scanf() to read the newline character instead of waiting for user input.

    //to fix this, you need to consume the newline character after reading integers.

    // You can do this by adding a space before the %c specifier in your scanf() calls.

    scanf(" %c", &gen);

    printf("Enter the marital status of driver:");

    scanf(" %c", &ms);

        if ((ms == 'Y') || ((ms == 'N') && ((gen == 'M') && (age >= 30))) || (((ms == 'N') && ((gen == 'F') && (age >= 25)))))

        printf("Insurance should be provided.\n");

    else

        printf("Insurance will not be provided.\n");

    return 0;

}

**PROGRAMMEME-11**

/\* programe\_11 \*/

/\* author Ahsan ul haq \*/

/\* roll number 22069120033 \*/

// use of conditional operators (" ? and :")

#include <stdio.h>

int main()

{

int x, y ;

    printf("Enter the value of X :");

    scanf("%d", &x);

    (y = (x > 5 ? 3 : 4));

    printf("value of y = %d", y);

return 0;

}