

```

        break;
    case 4:
        printf("\nEnter marks of the student");
        scanf("%d",&x);
        printf("Marks=%d",x);
        printf("Grade is D\n");
        break;
    case 5:
        printf("\nEnter marks of the student");
        scanf("%d",&x);
        printf("Marks=%d",x);
        printf("Grade is P\n");
        break;
    case 6:
        printf("\nEnter marks of the student");
        scanf("%d",&x);
        printf("Marks=%d",x);
        printf("Grade is F\n");
        break;
    case 7:
        exit(0);
    default:
        printf("Wrong choice!\n");
    }
}
return 0;
}

```

```

C:\Users\acer\Desktop>g++ 10.c
Enter marks of the student
1. 85
2. 70
3. 60
4. 50
5. 35
6. x
7. exit
your choice?
Enter marks of the student
Marks=85
Grade is A
Enter marks of the student
1. 85
2. 70
3. 60
4. 50
5. 35
6. x
7. exit
your choice?
Process returned 0 (0x0)   execution time : 10.433 s
Press any key to continue.

```

3. No income tax is to be paid if income is less than 5000. If income is between 5000 and 6000 then tax is 10% of the amount by which the income exceeds 5000. If income is between 6000 and 15000 then the tax is 100 + 20% of the amount by which the income exceeds 6000. If income is more than 15000 then the tax is 1900 + 30% of the amount by which the income exceeds 15000. e.g., if income is 10000 then the tax will be $100 + (10000 - 6000) * 20/100 = 900$. Write a program, which reads income and calculates the income tax.

```

#include<stdio.h>
#include<stdlib.h>
int main()
{

int choice,x,y;
while(1)
{

```



```

C:\Users\user> .\task1.exe
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```
C:\Users\user\Desktop>gcc 12.c
Enter a,b and c2
3
The output is 414
Process returned 0 (0x0)   execution time : 7.814 s
Press any key to continue.
```

12. Write program, which reads numbers x and k and finds k–th (integer) root of x

```
#include<stdio.h>
#include<math.h>
int main(void)
{
    int x,k,i;
    printf("Enter the value of x");
    scanf("%d",&x);
    printf("Enter the value of k");
    scanf("%d",&k);
    for( i=0;i<x;i++)
    {
        if(x>pow(i,k)&&x<pow((i+1),k));
        {

            printf("The output is=%d",i);
            break;}
    }
}
```

```
C:\Users\user\Desktop>gcc 12.c
Enter the value of x345
Enter the value of k3
The output is 3
Process returned 0 (0x0)   execution time : 0.11 s
Press any key to continue.
```

13. Write program, which reads two numbers and computes output in the following manner.

```
#include<stdio.h>
#include<math.h>
```

```

for(i=0;i<n;i++)
    scanf("%f",&b[i]);
for(i=0;i<n;i++)
    x[i]=0;
//checking for row dominance
flag=0;
for(i=0;i<n;i++)
{
    sum=0;
    for(j=0;j<n;j++)
        if(i!=j)
            sum+=fabs(a[i][j]);
    if(sum>fabs(a[i][i]))
        flag=1;
}
//checking for column dominance
if(flag==1)
    flag=0;
for(j=1;j<n;j++)
{
    sum=0;
    for(i=1;i<n;i++)
        if(i!=j)
            sum+=fabs(a[i][j]);
    if(sum>fabs(a[j][j]))
        flag=1;
}
if(flag==1)
{
    printf("The coefficient matrix is not diagonally dominant \n");
    printf("The Gauss-Jacobi method does not converge surely");
    exit(0);
}
for(i=0;i<n;i++)
    printf(" x[%d] ",i);
printf("\n");
do
{
    for(i=0;i<n;i++)
    {
        sum=b[i];
        for(j=0;j<n;j++)
            if(j!=i)
                sum-=a[i][j]*x[j];
        xn[i]=sum/a[i][i];
    }
    for(i=0;i<n;i++)
        printf("%8.5f ",xn[i]);
    printf("\n");
    flag=0;
    //indicates |x[i]-xn[i]|<epp for all i
    for(i=0;i<n;i++)
        if(fabs(x[i]-xn[i])>epp)
            flag=1;
    if(flag==1)
        for(i=1;i<n;i++)
            x[i]=xn[i]; //reset x[i]
}while(flag==1);

```

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