Question 1: To check the survival score of the COVID19 Patient based on the input Age, CT Score, Vaccinated Status.

Initial Survival Score = 100

Condition 1:

Age (0 - 18)	Score - 0
Age (19 - 45)	Score - 2
Age (46 - 65)	Score - 5
Age (66 - 100)	Score - 10

Condition 2:

CT Score (0 - 10)	Score - 2
CT Score (11 - 20)	Score - 5
CT Score (21 - 25)	Score - 10

Condition 3:

Vaccinate status 1	Score + 2
Vaccinate status 2	Score + 5

Input Format:
First Line: Vaccinated status (1: Partial; 2: Full)
Second Line: Age (Range 0-100)
Third Line: CT score (Range 0-25)

Output Format:
First Line: Survival score

Example Input:

```
1
68
24
```

Since, the initial Survival Score was 100. So, with the above first condition: Age is between 66 - 100: 100 - 10 = 90. According to the second condition, the CT score is between 21 - 25: 90 - 10 = 80. As per third condition: Vaccinated Status is 1: 80 + 2 = 82. So final Survival Score = 82

Final Output:

```
Survival Score: 82
```

Code

```
#include<iostream>
using namespace std;
class patient
{
   private:
      int ct, age, vaccine;
   public:
      void input();
      void display();
      void checkScore();
      int score = 100;
};
void patient::input()
{
   cin>>vaccine;
   cin>>age;
   cin>>ct;
}
void patient::display()
{
   cout<<"\nSurvival Score: "<<score;
}
void patient::checkScore()
{
   if(age>65 && ct>0 && ct<=10 && vaccine == 1){
      score = score - 10;
   }
   else if(age>65 && ct>10 && ct<=20 && vaccine == 1){
      score = score - 13;
   }
   else if(age>65 && ct>20 && ct<=25 && vaccine == 1){
      score = score - 18;
   }
   if(age>65 && ct>0 && ct<=10 && vaccine == 2){
```

```
    score = score - 7;
}
else if(age>65 && ct>10 && ct<=20 && vaccine == 2){
    score = score - 10;
}
else if(age>65 && ct>20 && ct<=25 && vaccine == 2){
    score = score - 15;
}
else if(age>45 && age<=65 && ct>0 && ct<=10 && vaccine == 1){
    score = score - 5;
}
else if(age>45 && age<=65 && ct>10 && ct<=20 && vaccine == 1){
    score = score - 8;
}
else if(age>45 && age<=65 && ct>20 && ct<=25 && vaccine == 1){
    score = score - 13;
}
else if(age>45 && age<=65 && ct>0 && ct<=10 && vaccine == 2){
    score = score - 2;
}
else if(age>45 && age<=65 && ct>10 && ct<=20 && vaccine == 2){
    score = score - 5;
}
else if(age>45 && age<=65 && ct>20 && ct<=25 && vaccine == 2){
    score = score - 10;
}
else if(age>18 && age<=45 && ct>0 && ct<=10 && vaccine == 1){
    score = score - 2;
}
else if(age>18 && age<=45 && ct>10 && ct<=20 && vaccine == 1){
    score = score - 5;
}
else if(age>18 && age<=45 && ct>20 && ct<=25 && vaccine == 1){
    score = score - 10;
}
else if(age>18 && age<=45 && ct>0 && ct<=10 && vaccine == 2){
    score = score - 0;
}
else if(age>18 && age<=45 && ct>10 && ct<=20 && vaccine == 2){
    score = score - 2;
}
else if(age>18 && age<=45 && ct>20 && ct<=25 && vaccine == 2){
    score = score - 7;
}
```

```
}
int main()
{
    patient p;
    p.input();
    p.checkScore();
    p.display();
}
```

Question 2:

Generate boarding pass for the passengers of a ship which starts from Chennai to Andaman. The boarding pass must be generated automatically with a pass number that begins with “CA” and followed by a number that is automatically incremented from value ‘x’, details like passenger name, age, mobile number, address, date of journey and fare. There is a seasonal discount based on the age of the passengers. Write a non member function called discount which calculates the discount in the fare for the passenger with the following discounts. For the age group `between 12 and 58, both inclusive’ there is 30% discount in the fare, for the age group ‘above 58’, there is 50% discount and for the children (age under 12), 60% discount. Write a C++ program to generate pass for ‘n’ users.

Input Format:

Passenger name

Value of ‘x’

Age
Address
date_of_Journey
mobile number
Original Fare

Output Format:

passenger name

Boarding pass number
age
date_of_Journey
mobile number
Total fare after discount based on age

Example Input:

```
CA
10
39
NAK
10/10/2020
8794000500
5000
```

Final Output:

```
CA
CA10
39
10/10/2020
8794000500
3500
```

Code

```
#include < iostream >
using namespace std;
float discount(float init_price,int age)
{
   if(age < 12)
   init_price-=(init_price*0.6);
   else if(age < = 58)
    init_price-=(init_price*0.3);
    else
    init_price-=(init_price*0.5);
    return(init_price);
}
class passenger
{
    char name[20],add[30],date[20],number[20];
    int age,x;
    float init_price,final_price;
    public :
        passenger(){}
        void get()
        {
            cin>>name>>x>>age>>add>>date>>number>>init_price;
           final_price=discount(init_price,age);
       }
       ~passenger()
       {
```

```
cout<<name<<"\nCA"<<x<<"\n"<<age<<"\n"<<date<<"\n"<<number<<"\n"<<final_price<<"\n";
        }
};
int main()
{
    passenger pas;
    pas.get();
    return(0);
}
```

Question 3: Given a number ‘n’ and a position ‘p’, write an algorithm and the subsequent ‘C’ program to check if the ‘p-th’ digit from the leftmost position of ‘n’ is odd or even. For example, if ‘n’ is 3145782 and p is 4 then you have to check if 5 is odd or even. Since it is odd print ‘Odd’. Make your code accept numbers of larger size.

Input Format:

The first line contains the number, n

The second line contains the position, p

Output Format:

Print either “Odd” or “Even”

```
#include< stdio.h >
void main()
{
        int p,i=0,a[10];
        long int n;
        scanf("%d%d",&n,&p);
        while(n > 0)
        {
                a[i++]=n%10;
                n/=10;
        }
        if(a[i-p]%2==0)
        printf("Even");
        else
        printf("Odd");
}
```

Example Input:

```
38769
3
```

Final Output:

```
Odd
```