DS TUTORIAL 2

CODE 1:

```
/*Game Development:
write a game development program that implements the Bubble Sort algorithm. The program will simulate a simple game where the player can input a set of numbers, and the numbers will be sorted using Bubble Sort to simulate a "level-up" scenario where the player's scores are sorted in ascending order.*/

#include <iostream>
using namespace std;
int main()
{
    int n;
    std::cout <<"Enter the number of scores:";
    std::cin >> n;
    int arr1[n]={};
    int arr2[n]={};
    std::cout<<"For player 1\n";
    for (int i=0;i<n;i++)
    {
        std::cout<<"Enter the score no " <<i+1<<":";
        std::cin >>arr1[i];
    }for (int i=0;i<n-1;i++)
    {
        for(int j=0;j<n-1-i;j++)
        {
            if(arr1[j]<arr1[j+1])
            {
                int temp=arr1[j];
                arr1[j]=arr1[j+1];
                arr1[j+1]=temp;
            }
        }
    }std::cout<<"Scores in descending for player 1 is as follows";
    for(int i=0;i<n;i++)
    {
        std::cout<<arr1[i] <<",";
    }
    //For Player 2
    std::cout<<"\nFor player 2\n";
    for (int i=0;i<n;i++)
    {
        std::cout<<"Enter the score no " <<i+1<<":";
```

```
        std::cin >>arr2[i];
    }for (int i=0;i<n-1;i++)
    {
        for(int j=0;j<n-1-i;j++)
        {
            if(arr2[j]<arr2[j+1])
            {
                int temp=arr2[j];
                arr2[j]=arr2[j+1];
                arr2[j+1]=temp;
            }
        }
    }std::cout<<"Scores in descending for player 2 is as follows";
    for(int i=0;i<n;i++)
    {
        std::cout<<arr2[i] <<",";
    }
    // Calculating the winner
    if(arr1[0]>arr2[0])
    {
std::cout<<"\nWinner is player 1";
}else if(arr2[0]>arr1[0])
{
std::cout<<"\nWinner is player 2";
}else
{
std::cout<<"\nScores are tie";
}
}
```

OUTPUT 1:

```
Enter the number of scores:5
For player 1
Enter the score no 1:1
Enter the score no 2:6
Enter the score no 3:3
Enter the score no 4:2
Enter the score no 5:5
Scores in descending for player 1 is as follows6,5,3,2,1,
For player 2
Enter the score no 1:7
Enter the score no 2:2
Enter the score no 3:1
Enter the score no 4:3
Enter the score no 5:4
Scores in descending for player 2 is as follows7,4,3,2,1,
Winner is player 2

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(program exited with code: 0)
Press return to continue
```

CODE 2:

```
/*Organizing Cards in a Hand:
Application: When playing card games, players often use an approach
similar to insertion sort to  organize their cards. They pick one
card at a time and insert it into the correct position in their hand,
maintaining a sorted sequence. Write a program that demonstrates how
to organize (sort) cards in a hand using insertion sort*/

#include<iostream>
using namespace std;
int main()
{
//INPUT
int n;
std::cout<<"PRN-B24CE1076\n";
std::cout <<"Enter the number of cards you want to enter:";
std::cin >>n;
int arr[n]={};
std::cout<<"1-Ace,-----,11-Jack,12-Queen,13-King\n";
for(int i=0;i<n;i++)
```

```
{
std::cout<<"Enter the number for the card: "<<i+1<<":";
std::cin>>arr[i];
}
//loop for the pass operation
for(int i=1;i<n;i++)
{
int prev=i-1;
int temp=arr[i];
// loop for shifting and termination condition
while(prev >= 0 && arr[prev] > temp) {
            arr[prev+1] = arr[prev];
            prev--;
        }
arr[prev+1]=temp;
// printing after each pass
std::cout<<"Cards after pass "<<i<<":";
for(int i=0;i<n;i++)
{
std::cout<<arr[i]<<",";
}
std::cout<<"\n";
}
//OUTPUT
std::cout<<"Final Sorted Cards";
for(int i=0;i<n;i++)
{
std::cout<<arr[i]<<",";
}
return 0;
}
```

OUTPUT 2:

```
PRN-B24CE1076
Enter the number of cards you want to enter:5
1-Ace,-----,11-Jack,12-Queen,13-King
Enter the number for the card: 1:75
Enter the number for the card: 2:39
Enter the number for the card: 3:2
Enter the number for the card: 4:95
Enter the number for the card: 5:1
Cards after pass 1:39,75,2,95,1,
Cards after pass 2:2,39,75,95,1,
Cards after pass 3:2,39,75,95,1,
Cards after pass 4:1,2,39,75,95,
Final Sorted Cards1,2,39,75,95,

------------------
(program exited with code: 0)
Press return to continue
```