21110324 - Lương Đăng Khôi

Yêu cầu 1:

Kết quả:

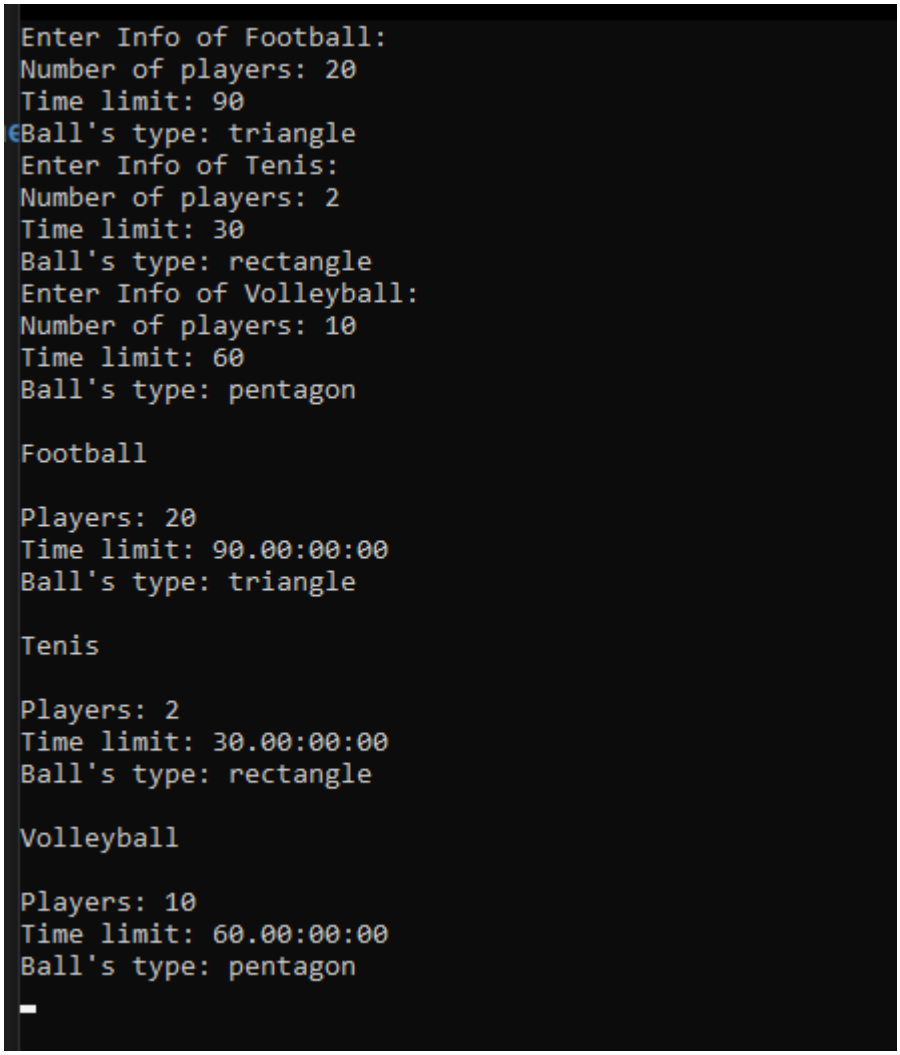
```
Enter the number of dogs: 3
Entering information for Dog 1:
Enter the name of the Dog: buddy
Enter the age of the Dog: -3
Invalid number! Please enter again: Enter the age of the Dog: 1
Enter the height of the Dog: asd
Something went wrong! Please enter again: 20
Enter the weight of the Dog: 2
Entering information for Dog 2:
Enter the name of the Dog: max
Enter the age of the Dog: 20
Enter the height of the Dog: 30
Enter the weight of the Dog: 3
Entering information for Dog 3:
Enter the name of the Dog: whiskers
Enter the age of the Dog: -2
Invalid number! Please enter again: Enter the age of the Dog: 21
Invalid number! Please enter again: Enter the age of the Dog: 3
Enter the height of the Dog: 28.0
Enter the weight of the Dog: 8.1
Enter the number of cats: 2
Entering information for Cat 1:
Enter the name of the Cat: Luna
Enter the age of the Cat: 2
Enter the height of the Cat: 15
Enter the weight of the Cat: 2
Entering information for Cat 2:
Enter the name of the Cat: Bas
Enter the age of the Cat: asd
Somethings went wrong! Please enter again: Enter the age of the Cat: 4
Enter the height of the Cat: 30
Enter the weight of the Cat: 5

Displaying information of all dogs:
Type: Dog, Name: buddy, Age: 1, Height: 20, Weight: 2
Type: Dog, Name: max, Age: 20, Height: 30, Weight: 3
Type: Dog, Name: whiskers, Age: 3, Height: 28, Weight: 8.1

Displaying information of all cats:
Type: Cat, Name: Luna, Age: 2, Height: 15, Weight: 2
Type: Cat, Name: Bas, Age: 4, Height: 30, Weight: 5
```

Yêu cầu 2:

Kết quả:



Mã nguồn Yêu cầu 1:

```
using System;



namespace AnimalListManagement
{
    using MainData;


    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter the number of dogs: ");
            int dogCount = int.Parse(Console.ReadLine());
```

```
Dog[] dogs = new Dog[dogCount];
for (int i = 0; i < dogCount; i++)
{
    dogs[i] = new Dog();
    Console.WriteLine($"Entering information for Dog {i + 1}:");
    dogs[i].InputInfo();
}

Console.Write("Enter the number of cats: ");
int catCount = int.Parse(Console.ReadLine());

Cat[] cats = new Cat[catCount];
for (int i = 0; i < catCount; i++)
{
    cats[i] = new Cat();
    Console.WriteLine($"Entering information for Cat {i + 1}:");
    cats[i].InputInfo();
}

Console.WriteLine("\nDisplaying information of all dogs:");
foreach (var dog in dogs)
{
    dog.DisplayInfo();
}

Console.WriteLine("\nDisplaying information of all cats:");
foreach (var cat in cats)
{
    cat.DisplayInfo();
}
```

```
            Console.ReadLine();
        }
    }
}

namespace MainData
{
    public class Animal
    {
        public string Name { get; set; } = "";
        public int Age { get; set; } = 0;
        public float Height { get; set; } = 0;
        public float Weight { get; set; } = 0;

        public void InputAge()
        {
            bool isComplete = false;

            Console.Write($"Enter the age of the {this.GetType().Name}: ");
            try
            {
                Age = int.Parse(Console.ReadLine());
                if (Age < 0 || Age > 20)
                    throw new NegativeNumException();
                isComplete = true;
            }
            catch (FormatException)
            {
                Console.Write("Somethings went wrong! Please enter again: ");
            }
            catch (NegativeNumException)
            {
```

```
        Console.Write("Invalid number! Please enter again: ");
    }
    finally
    {
        if (!isComplete)
            InputAge();
    }
}

public enum InputType
{
    Height,
    Weight
}

public void InputNum(InputType inputType)
{
    bool isComplete = false;

    string prompt = inputType == InputType.Height ? "height" : "weight";
    Console.Write($"Enter the {prompt} of the {this.GetType().Name}: ");

    while (!isComplete)
    {
        try
        {
            if (inputType == InputType.Height)
                Height = float.Parse(Console.ReadLine());
            else if (inputType == InputType.Weight)
                Weight = float.Parse(Console.ReadLine());
            isComplete = true;
        }
```

```
            catch (FormatException)
            {
                Console.Write("Something went wrong! Please enter again: ");
            }
            //catch (NegativeNumException)
            //{
            //    Console.Write("Invalid number! Please enter again: ");
            //}
        }
    }

    public virtual void InputInfo()
    {
        Console.Write($"Enter the name of the {this.GetType().Name}: ");
        Name = Console.ReadLine();

        InputAge();

        InputNum(InputType.Height);

        InputNum(InputType.Weight);
    }

    public virtual void DisplayInfo()
    {
        Console.WriteLine($"Type: {this.GetType().Name}, Name: {Name}, Age: {Age},
Height: {Height}, Weight: {Weight}");
    }

    public override string ToString()
    {
        return $"Name: {Name}, Age: {Age}, Height: {Height}, Weight: {Weight}";
    }
```

```
    }

    public class NegativeNumException : Exception
    {
        public NegativeNumException() { }
        public NegativeNumException(string message): base(message) { }
    }

    public class Dog : Animal
    {

    }

    public class Cat : Animal
    {

    }
}
```

Mã nguồn Yêu cầu 2:

```
using System;

namespace SportsManagement
{
    using MainData;

    class Program
    {
        static void Main(string[] args)
        {
            Football f = new Football();
            Tenis t = new Tenis();
            Volleyball v = new Volleyball();
```

```
            f.InputInfo(); t.InputInfo(); v.InputInfo();
            f.DisplayInfo(); t.DisplayInfo(); v.DisplayInfo();

            Console.ReadLine();
        }
    }
}

namespace MainData
{
    public class Sport
    {
        public int Num { get; set; }
        public TimeSpan Time { get; set; }
        public string Ball { get; set; }

        public virtual void InputInfo()
        {
            Console.WriteLine($"Enter Info of {this.GetType().Name}:");

            Console.Write("Number of players: "); Num = int.Parse(Console.ReadLine());
            Console.Write("Time limit: "); Time = TimeSpan.Parse(Console.ReadLine());
            Console.Write("Ball's type: "); Ball = Console.ReadLine();
        }

        public void DisplayInfo()
        {
            Console.WriteLine($"\n{this.GetType().Name}\n");

            Console.WriteLine($"Players: {Num}");
            Console.WriteLine($"Time limit: {Time}");
```

```
            Console.WriteLine($"Ball's type: {Ball}");
        }
    }

    public class Football : Sport { }
    public class Tenis : Sport { }
    public class Volleyball : Sport { }
}
```