# Lab: Creating Classes

## Background

A class is a blueprint or template for creating objects. The programs in C# are composed of classes and objects. Each class includes a set of attributes and methods that can be used by the objects created using that class.

## Instructions

Use C# IDE to write a program as follows.

1. Create a class called **Person** that has the following six attributes:

* personId: int
* firstName: string
* lastName: string
* favoriteColour: string
* age: int
* isWorking: bool

Ensure that the Person class has the following methods:

* DisplayPersonInfo: accepts the six person attributes and displays (Name= firstName + lastName)  
  personId: Name’s favorite color is favoriteColour
* ChangeFavoriteColour: changes the person’s favorite colour to white
* GetAgeInTenYears: get the person’s age after 10 years
* ToString method: displays all Person Object information as a list

1. Create a class called **Relation** that has one attribute:

* RelationshipType: values can be **Sister**, **Brother**, **Mother** or **Father**

Ensure the Relation class has the following method:

* ShowRelationShip: accepts two Person objects and displays the relationship between them

1. Create a **Main** class.
   1. Create four objects using the following data:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **personId** | **firstName** | **lastName** | **favoriteColour** | **age** | **isWorking** |
| 1 | Ian | Brooks | Red | 30 | Yes |
| 2 | Gina | James | Green | 18 | No |
| 3 | Mike | Briscoe | Blue | 45 | Yes |
| 4 | Mary | Beals | Yellow | 28 | Yes |

* 1. Display Gina’s information as a sentence that shows her id, first name, last name and her favorite colour.
  2. Display all of Mike’s information as a list.
  3. Change Ian’s Favorite Colour to **white**, and then print his information as a sentence.
  4. Display Mary’s age after ten years.
  5. Create two Relation Objects that show that Gina and Mary are sisters, and that Ian and Mike are brothers. Then, display both relationships.
  6. Add all the Person objects to a list, and then use the list to display the following:
* The average age of the people in the list
* The youngest person and the oldest person
* The names of the people whose first names start with M
* The person information of the person that likes the colour blue

## Sample Run

*2: Gina James’s favorite colour is Green*

*PersonId: 3*

*FirstName: Mike*

*LastName: Briscoe*

*FavoriteColour: Blue*

*Age: 45*

*IsWorking: True*

*1: Ian Brooks’s favorite colour is: White*

*Mary Beals’s Age in 10 years is: 38*

*Relationship between Gina and Mary is: Sisterhood*

*Relationship between Ian and Mike is: Brotherhood*

*Average age is: 30.25*

*The youngest person is: Gina*

*The oldest person is: Mike*

*PersonId: 3*

*FirstName: Mike*

*LastName: Briscoe*

*FavoriteColour: Blue*

*Age: 45*

*IsWorking: True*

*PersonId: 4*

*FirstName: Mary*

*LastName: Beals*

*FavoriteColour: Yellow*

*Age: 28*

*IsWorking: True*

*PersonId: 3*

*FirstName: Mike*

*LastName: Briscoe*

*FavoriteColour: Blue*

*Age: 45*

*IsWorking: True*