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| **Day 8 Assignment**  **By**  **Nanam Vaishnavi** |

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| **1. Write a C# program to read input from user and print**  **a. factorial of a number**  **b. factors of a number**  **c. check if it prime or not** |
| **CODE :** |
| using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  using System.Threading.Tasks;  //\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  //Author : Nanam Vaishnavi  //Purpose: Operations  //\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*    namespace Day9Project1  {  class Operations  {  private int input;  public void ReadInput()  {  Console.WriteLine("Enter number: ");  input=Convert.ToInt32(Console.ReadLine());  }  public int Factorial()  {  int fact = 1;  for(int i=1;i<=input;i++)  {  fact = fact \* i;  }  return fact;  }    public void Factors()  {  for(int i = 1;i<=input;i++)  {  if(input%i==0)  Console.WriteLine(i);  }  }  public bool IsPrime()  {  int count = 0;  for(int i=1;i<input;i++)  {  if (input % 1 == 0)  count++;  }  if (count == 2)  return true;  else  return false;  }  }  internal class Program  {  static void Main(string[] args)  {  Operations ob = new Operations();  ob.ReadInput();  Console.WriteLine(ob.Factorial());  ob.Factors();  if (ob.IsPrime())  Console.WriteLine("Input is PRIME Number");  else  Console.WriteLine("Not a Prime Number");    Console.ReadLine();  }  }  } |
| **OUTPUT** |
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| **2. Write C# program to read two numbers from use and print**  **a. sum of two numbers**  **b. difference of two numbers**  **c. product of two numbers**  **d. division of two numbers.** |
| **CODE** |
| using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  using System.Threading.Tasks;  // \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  // Author : Nanam Vaishnavi  // Purpose : Arithmetic Operations  //\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  namespace Day9Project2  {  class ArithmeticOperations  {  private int a;  private int b;    public void ReadInput()  {  Console.WriteLine("Enter First Number: ");  a= Convert.ToInt32(Console.ReadLine());  Console.WriteLine("Enter Second Number: ");  b= Convert.ToInt32(Console.ReadLine());  }  public int AddNumbers()  {  return a + b;  }  public int Difference()  {  return a - b;  }  public int Product()  {  return a \* b;  }  public int Division()  {  return a % b;  }  }  internal class Program  {  static void Main(string[] args)  {  ArithmeticOperations ar = new ArithmeticOperations();  ar.ReadInput();  Console.WriteLine(ar.AddNumbers());  Console.WriteLine(ar.Difference());  Console.WriteLine(ar.Product());  Console.WriteLine(ar.Division());  Console.ReadLine();    }  }  } |
| **OUTPUT** |
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| **3. Create an employee class with below variables: id, name, salary, company. Write methods to read data and print data.** |
| **CODE** |
| using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  using System.Threading.Tasks;  //\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  // Author : Nanam Vaishnavi  // Purpose: Display Employee Details  // \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  namespace Day9Project3  {  class Employee  {  public int id;  public string name;  public int salary;  public string company;    public void ReadData()  {  Console.WriteLine("Enter Employee ID: ");  id= Convert.ToInt32(Console.ReadLine());  Console.WriteLine("Enter Employee Name: ");  name = Console.ReadLine();  Console.WriteLine("Enter Employee Salary: ");  salary = Convert.ToInt32(Console.ReadLine());  company = "NationsBenifts";  }  public void PrintData()  {  Console.WriteLine($"Id:{id}, Name:{name}, Salary:{salary}, Company={company}");  }  }  internal class Program  {  static void Main(string[] args)  {  Employee emp1 = new Employee();  emp1.ReadData();  emp1.PrintData();  Employee emp2 = new Employee();  emp2.ReadData();  emp2.PrintData();  Console.ReadLine();  }  }  } |
| **OUTPUT** |
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| **4. Research and find the difference between normal variable and static variable.** |

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| **Static Variables** | **Normal Variables** |
| 1. A static variable can be accessed by static members. | 1.A Normal variable will have one copy each per object. |
| 1. An instance of a class does not have static variables. | 2. Instance variables can be accessed only by the instance methods. |
| 1. Static variables can be accessed by static or instance methods | 3.Each instance of a class will have one copy of non-static variables. |
| 1. Memory is allocated when the class is loaded in context area at run time. | 4.Instance variables are allocated at compile time. |

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| **5. Write 5 points discussed about constructor** |
| 1. A constructors is used to initialize class variables while creating objects.. |
| 1. By default, C# has one constructor i.e., Default constructor to initialize default values.   **Employee emp = new Employee()** |
| 1. If user create user-defined constructor the default constructor will disappear. |
| 1. Constructor name should be same as class name. If we use same variables as class variable use **this.** Keyword to differentiate class variable. |
| 1. For a constructor, there should not be any return type not even void.   **Eg : Public Employee(int id, string name)** |

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| **6. Create Employee class with two constructors as discussed in the class.** |
| **CODE** |
| using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  using System.Threading.Tasks;  namespace Day9Project4  {  class Employee  {  public int id;  public string name;  public int salary;  public static string company = "NationsBenefits";  public Employee()  {  this.id = 0;  this.name = null;  }  public Employee(int eid, string ename, int esalary)  {  id = eid;  name = ename;  salary = esalary;  }  public void ReadData()  {  Console.WriteLine("Enter Employee ID: ");  id = Convert.ToInt32(Console.ReadLine());  Console.WriteLine("Enter Employee Name: ");  name = Console.ReadLine();  Console.WriteLine("Enter Employee Salary: ");  salary = Convert.ToInt32(Console.ReadLine());  company = "NationsBenifts";  }  public void PrintData()  {  Console.WriteLine($"Id:{id}, Name:{name}, Salary:{salary}, Company={company}");  }  }  internal class Program  {  static void Main(string[] args)  {  Employee emp = new Employee(1, "Vaishnavi", 50000);  emp.PrintData();  Console.ReadLine();  }  }  } |
| **OUTPUT** |
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