Programming 1 (C#)

Week 6

Programma periode 1.1 (Programming 1)

01 (wk 36)	Introduction C# / Visual Studio 2022 (Community), basic problem solving
02 (wk 37)	branching, methods
03 (wk 38)	loops, basic version control setup
04 (wk 39)	classes, enums, arrays
05 (wk 40)	public/private, fields/properties, values & references
06 (wk 41)	~~inheritance, version control~~ Code reviewing & Code quality
07 (wk 42)	Repetition / practice exam
08 (wk-43)	*no classes*
09 (wk-44)	exam *(practical, computer)*
10 (wk-45)	-

Week 2

What can we improve?

```
public string GetDayOfWeek(int dayNumber)
{
    string Day;
    switch (dayNumber)
    {

        case > 0 and < 2:
            Day = "Monday";
            return "Monday";
        case > 1 and < 3:
            Day = "Tuesday";
            return "Tuesday";
        case > 2 and < 4:
            Day = "Wednesday";
            return "Wednesday";
        case > 3 and < 5:
            Day = "Thursday";
            return "Thursday";
        case > 4 and < 6:
            Day = "Friday";
            return "Friday";
        case > 5 and < 7:
            Day = "Saturday";
            return "Saturday";
        case > 6 and < 8:
            Day = "Sunday";
            return "Sunday";
        default:
            return "Invalid day number";

    }
```

What can we improve?

```
public string GetDayOfWeek(int DayNumber)
{
    if (DayNumber < 0 || DayNumber > 7)
    {
        return "Invalid day number";
    }
    else if (DayNumber == 1)
    {
        return "Monday";
    }
    else if (DayNumber == 2)
    {
        return "Tuesday";
    }
    else if (DayNumber == 3)
    {
        return "Wednesday";
    }
    else if (DayNumber == 4)
    {
        return "Thursday";
    }
    else if (DayNumber == 5)
    {
        return "Friday";
    }
    else if (DayNumber == 6)
    {
        return "Saturday";
    }
    else if (DayNumber == 7)
    {
        return "Sunday";
    }
    return "Invalid day number";
```

What can we improve?

```
switch (operation)
    {
    case "-":
        result = Subtract(a, b);
        break;
    case "*":
        result = Multiply(a, b);
        break;
    case "+":
        result = Add(a, b);
        break;
    case "/":
        result = Divide(a, b);
        break;



}
```

What can we improve?

```
void Start()
{
    Console.Write("Enter a number: ");
    int number = int.Parse(Console.ReadLine());
    if (number % 2 == 0)
    {
        Console.Write($"{number} is an even number");
    }
    else
    {
        Console.Write($"{number} is an odd number");
    }
}

public bool IsEven(int number)
{
    if (number % 2 == 0)
    {
        return true;
    }
    else
    {
        return false;
    }


}
```

What can we improve?

```
public void CheckNumber(int number)
{
    switch(number)
    {
        case > 0:
            Console.WriteLine("The number is positive.");
            break;
        case < 0:
            Console.WriteLine("The number is negative.");
            break;
        case 0:
            Console.WriteLine("The number is zero.");
            break;
        default:
            Console.WriteLine("Invalid number.");
            break;
    }
}
```

Week 3

What can we improve?

```
public int CalculateSum(int count)
{
    int amount = 0;
    int sum = 0;

    while (amount < count)
    {
        Console.Write($"Enter number {amount + 1}: ");
        string input = Console.ReadLine();

        if (int.TryParse(input, out int number))
        {
            sum = sum + number;
            amount++;
        }
        else
        {
            Console.WriteLine("Enter a valid number");
        }
    }

    return sum;


}
```

What can we improve?

```
public int CalculateFactorial(int n)
{
    int factorial = 1;
    for (int i = n; i > 0; i--)
    {
        factorial = factorial * i;

    }
    return factorial;
}
```

What can we improve?

```
public bool IsPrime(int number)
{

    int i = 2;
    while (i < number)
    {
        if (number % i == 0)
            return false;
        else
            i++;
    }
    return true;

}
```

What can we improve?

```
public int GetValidDimensionSize()
{
    while (true)
    {
        string input = Console.ReadLine();
        int dimensionSize;

        if (int.TryParse(input, out dimensionSize) && dimensionSize > 0)
        {
            return dimensionSize;
        }
        else
        {
            Console.WriteLine("Please enter a valid positive integer for the dimension size.");
        }
    }
}
```

What can we improve?

```
public void PerformCalculation()
{
    int choice;
    int firstNumber;
    int secondNumber;
    bool exitProgram = false;
    do
    {
        DisplayMenu();
        choice = AskAndAssignInt("Enter your choice: ");
        switch (choice)
        {
            case 1:
                {
                    firstNumber = AskAndAssignInt("Enter first number: ");
                    secondNumber = AskAndAssignInt("Enter second number: ");
                    Console.WriteLine($"Result: {Add(firstNumber, secondNumber)}");
                    break;
                }
            case 2:
                {
                    firstNumber = AskAndAssignInt("Enter first number: ");
                    secondNumber = AskAndAssignInt("Enter second number: ");
                    Console.WriteLine($"Result: {Subtract(firstNumber, secondNumber)}");
                    break;
                }
            case 3:
                {
                    firstNumber = AskAndAssignInt("Enter first number: ");
                    secondNumber = AskAndAssignInt("Enter second number: ");
                    Console.WriteLine($"Result: {Multiply(firstNumber, secondNumber)}");
                    break;
                }
            case 4:
                {
                    firstNumber = AskAndAssignInt("Enter first number: ");
                    secondNumber = AskAndAssignInt("Enter second number: ");
                    Console.WriteLine($"Result: {Divide(firstNumber, secondNumber)}");
                    break;
                }
            default:
                exitProgram = true;
                break;
        }
        Console.WriteLine("");
    } while (!exitProgram);
}
```

Week 4

What can we improve?

```
public void Start()
{
    Console.Write("Enter a day of the week (e.g., Monday): ");
    string input = Console.ReadLine();
    Day day = (Day)Enum.Parse(typeof(Day), input, true);

    switch (day)
    {
        case Day.Monday:
            Console.WriteLine("Weekend is loading...");
            break;
        case Day.Tuesday:
            Console.WriteLine("Weekend is loading...");
            break;
        case Day.Wednesday:
            Console.WriteLine("Weekend is loading...");
            break;
        case Day.Thursday:
            Console.WriteLine("Weekend is loading...");
            break;
        case Day.Friday:
            Console.WriteLine("Weekend is loading...");
            break;
        case Day.Saturday:
            Console.WriteLine("It's weekend!! Party time!");
            break;
        case Day.Sunday:
            Console.WriteLine("It's weekend!! Party time!");
            break;
    }
}
```

What can we improve?

```
// This is public for the tests, don't change this.
public void Start()
{

    Console.WriteLine("Enter a day of the week (e.g., Monday): ");
    string input = Console.ReadLine();
    Day day = (Day)Enum.Parse(typeof(Day), input);

    if (Enum.TryParse(input, true, out day))
    {
        switch (day)
        {
            case Day.Saturday:
            case Day.Sunday:
                Console.WriteLine("It's weekend!! Party time!");
                break;
            default:
                Console.WriteLine("Weekend is loading...");
                break;
        }
    }
    else
    {
        Console.WriteLine("Invalid input");
    }
}
```

What can we improve?

```
1   namespace Assignment6
2   {
3       public enum VoteOption
4       {
5           Yes = 1, No
6       }
7   }
```

What can we improve?

```
for (int i = 1; i <= numbers; i++)
{
    Console.Write($"Enter grade {i}:");
    grades[i-1] =int.Parse(Console.ReadLine());
}
```

Week 5

What can we improve?

```
namespace Assignment3
{
    public class Car
        {
            public string Make { get; set; }
            public string Model { get; set; }
            public int Year { get; set; }

            public Car(string Make, string Model, int Year)
            {
                this.Make = Make;
                this.Model = Model;
                this.Year = Year;
            }

            public void DisplayCarInfo(string Make, string Model, int Year)
            {
                Console.WriteLine("Car details");
                Console.WriteLine($"Make: {Make}");
                Console.WriteLine($"Model: {Model}");
                Console.WriteLine($"Year: {Year}");
            }
        }
    public class Program
    {
        static void Main(string[] args)
        {
            Program program = new Program();
            program.Start();
        }

        void Start()
        {
            Console.Write("enter car make: ");
            string Make = Console.ReadLine();
            Console.Write("enter car model: ");
            string Model = Console.ReadLine();
            Console.Write("enter car year: ");
            int Year = int.Parse(Console.ReadLine());
            Car car = new Car(Make, Model, Year);
            car.DisplayCarInfo(Make, Model, Year);
        }
    }
}
```

What can we improve?

```
namespace Assignment3
{
    public class Car
        {
            public string Make { get; set; }
            public string Model { get; set; }
            public int Year { get; set; }

            public Car(string Make, string Model, int Year)
            {
                this.Make = Make;
                this.Model = Model;
                this.Year = Year;
            }

            public void DisplayCarInfo(string Make, string Model, int Year)
            {
                Console.WriteLine("Car details");
                Console.WriteLine($"Make: {Make}");
                Console.WriteLine($"Model: {Model}");
                Console.WriteLine($"Year: {Year}");
            }
        }
    public class Program
    {
        static void Main(string[] args)
        {
            Program program = new Program();
            program.Start();
        }

        void Start()
        {
            Console.Write("enter car make: ");
            string Make = Console.ReadLine();
            Console.Write("enter car model: ");
            string Model = Console.ReadLine();
            Console.Write("enter car year: ");
            int Year = int.Parse(Console.ReadLine());
            Car car = new Car(Make, Model, Year);
            car.DisplayCarInfo(Make, Model, Year);
        }
    }
}
```

Homework

– (practical class) Programming 1

  - Practice Exam → Moodle


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hogeschool