# Homework: Defining Classes

This document defines the homework assignments from the ["OOP" Course @ Software University](https://softuni.bg/trainings/coursesinstances/details/8). Please submit as homework a single zip / rar / 7z archive holding the solutions (source code) of all below described problems. The solutions should be written in C#.

## Persons

Define a class **Person** that has **name**, **age** and **email**. The **name** and **age** are mandatory. The **email** is optional. Define **properties** that accept non-empty name and age in the range [1...100]. In case of invalid argument, throw an exception. Define a property for the email that accepts either **null** or non-empty string containing '**@**'. Define two **constructors**. The first constructor should take name, age and email. The second constructor should take name and age only and call the first constructor. Implement the **ToString()** method to enable printing persons at the console.

## Laptop Shop

Define a class **Laptop** that holds the following information about a laptop device: **model**, **manufacturer**, **processor**, **RAM**, **graphics card**, **HDD**, **screen**, **battery**, **battery life** in hours and **price**.

* The **model** and **price** are mandatory. All other values are optional.
* Define two separate classes: a class **Laptop** holding an instance of class **Battery**.
* Define several constructors that take different sets of arguments (full laptop + battery information or only part of it). Use proper variable types.
* Add a method in the **Laptop** class that displays information about the given instance
  + Tip: override the **ToString()** method
* Put **validation** in all property setters and constructors. String values cannot be empty, and numeric data cannot be negative. Throw exceptions when improper data is entered.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample laptop description (full):** | |  | **Sample laptop description (mandatory properties only)** | |
| model | Lenovo Yoga 2 Pro | model | HP 250 G2 |
| manufacturer | Lenovo | price | 699.00 lv. |
| processor | Intel Core i5-4210U (2-core, 1.70 - 2.70 GHz, 3MB cache) |  | |
| RAM | 8 GB |
| graphics card | Intel HD Graphics 4400 |
| HDD | 128GB SSD |
| screen | 13.3" (33.78 cm) – 3200 x 1800 (QHD+), IPS sensor display |
| battery | Li-Ion, 4-cells, 2550 mAh |
| battery life | 4.5 hours |
| price | 2259.00 lv. |