# Homework: OOP in PHP

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 PHP.

## Hotel Reservation System

Create a hotel reservation system where guests book rooms for a given period of time.

* **Room** – a class for all rooms. Holds **room information** and an array of **reservations**. Implements **iReservable**. Create a custom exception **EReservationException**, which should be thrown if a reservation already exists in that period. Implement several types of rooms as subclasses:
  + **Single room** – 1 bed, Standard room, with restroom, no balcony, extras – TV, air-conditioner
  + **Bedroom** – 2 beds, Gold room, with restroom and balcony, extras – TV, air-conditioner, refrigerator, mini-bar, bathtub
  + **Apartment** – 4 beds, Diamond room, with restroom and balcony, extras – TV, air-conditioner, refrigerator, kitchen box, mini-bar, bathtub, free Wi-fi
* Keep the following **room information** for each room – holds the following fields: **room type** (can be **Standard**, **Gold** or **Diamond**), has **restroom**, has **balcony**, **bed count**, **room number**, **extras** (e.g. TV, air-conditioner, refrigerator, etc.) and **price**
* **Guest** – holds **first name**, **last name**, **id** (EGN)
* **Reservation** – holds **startDate** and **endDate**, representing the time period when the room is booked, and **guest**

Create each class in a separate **.class.php** file. Use **autoloading** to include them in your main script.

Implement the following interfaces:

* **iReservable** – holds methods **addReservation($reservation)** and **removeReservation($reservation)**

**Encapsulate** all class fields with properties and **validate** the input data. Override the **\_\_toString()** method for each class to print information about the object.

Write a static class **BookingManager** with method **bookRoom($room, $reservation)** that handles room booking and prints a message whether the operation was successful or not.

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| **Sample Input** | **Sample Output** |
| $room = new SingleRoom(1408, 99);  $guest = new Guest("Svetlin", "Nakov", 8003224277);  $startDate = strtotime("24.10.2014");  $endDate = strtotime("26.10.2014");  $reservation = new Reservation($startDate, $endDate, $guest);  BookingManager::bookRoom($room, $reservation); | Room <strong>1408</strong> successfully booked for <strong>Svetlin Nakov</strong> from <time>24.10.2014</time> to <time>26.10.2014</time>! |

Create an array of different rooms. Perform the following operations:

* Filter the array by **bedrooms** and **apartments** with a price less or equal to 250.00
* Filter the array by all rooms with a **balcony**
* Return the **room numbers** of all rooms which have a **bathtub** in their extras
* \* Filter the array by all **apartments** which are **not** booked in a given time period (e.g. between **17.10.2014** and **19.10.2014**)