# C++ Advanced Exam – 5 September 2020

Write C++ code for solving the tasks on the following pages.

Submit your solutions here: <https://judge.softuni.bg/Contests/2555/CPlusPlus-Advanced-Exam-5-September-2020>

Any code files that are part of the task are provided under the folder Skeleton.

Please follow the exact instructions on uploading the solutions for each task.

# Task 3 - My Tropico

You are playing a game named Tropico. In this game you have the ability to create new buildings for future strategic development of the game.

In the main() function there a single integer value – **n** is read

On the next **n** lines you will read the following **commands**:

* **"build" command** (followed by a building **type (Palace or House)** - string, **width** - int and **length** - int) – creates a new building
* **"duplicate" command** (followed by two integers - **idx1** and **idx2**) – duplicates a building from one position to another
  + If same indexes – **print** "Invalid operation", followed by a **newline**
* **"replace" command** (followed by two integers - **idx1** and **idx2**) – switches places of building at position **idx1** and building position **idx2**
  + If same or invalid indexes – **print** "Invalid operation", followed by a **newline**
* **"demolish" command** (followed by one integer for - **idx1**) – destroys a building **at** **certain position**

Write a program which implements the missing functionalities for Palace.cpp, House.cpp and Main.cpp

* At the end of the **constructor** you should call print() followed by printing "| Constructor is called" and a **newline**
* At the end of the **destructor** you should call print() followed by printing "| Destructor is called" and a **newline**

Your task is to study the code and write the functionality so that the code accomplishes the task described.You should implementation for **main.cpp**, **House.cpp**, and **Palace.cpp** (and any other additional files if you think it is needed).

You should submit a single .zip file for this task, containing **ONLY** the files you created. The Judge system has a copy of the other files and will compile them, along with your file, in the same directory.

### Restrictions

You should only submit files with **.h** and **.cpp** extensions (in a **.zip** archive). You should **Not** have folders in your **.zip** submission archieve.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 6  build Palace 64 64  build House 20 30  build House 45 25  replace 0 2  duplicate 1 0  demolish 2 | Building type: Palace, measurements: 64 x 64  | Constructor is called  Building type: House, measurements: 20 x 30  | Constructor is called  Building type: House, measurements: 45 x 25  | Constructor is called  Building type: House, measurements: 20 x 30  | Destructor is called  Building type: House, measurements: 45 x 25  | Destructor is called  Building type: Palace, measurements: 64 x 64  | Destructor is called |
| 4  build Palace 150 150  duplicate 0 0  demolish 0  build House 30 30 | Building type: Palace, measurements: 150 x 150  | Constructor is called  Invalid operation  Building type: House, measurements: 30 x 30  | Constructor is called  Building type: Palace, measurements: 150 x 150  | Destructor is called  Building type: House, measurements: 30 x 30  | Destructor is called |