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**Assessment Cover Page**

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| *Module Title* | Machine Learning (10 ETCS) |
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I further confirm that this work has not previously been submitted for assessment by myself or someone else in CCT College Dublin or any other higher education institution.

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PROJECTION OF FUTURE HOUSING RELOCATIONS IN BEIJING

# Introduction

In this project, one of the most evident urban phenomena in the last decades in Beijing is being detected, this is the process of urban renewal of the city center, which CLOU has been managing to renovate inside the Capital Square Beijing and what they want to achieve with this is to reposition and improve the public space. Clou is managing through various processes to illuminate the office lobbies with a modern design language, introducing the concept "*The City Lantern*".

Objective In fact, what this project aims to achieve is to generate a notable impact on the real decline and abandonment that is being observed in houses and apartments. Additionally, in this Data it is observed that some houses were built since 1960 and through this it is intended to analyze the number of times these houses have been remodeled to date, according to the structure of the building.

Definition of the problem, the objective of this project is to be able to determine the areas of the perimeter that are experiencing the most abandonment according to the year of construction and the number of reforms, or any type of repairs that have been carried out in the buildings in order to find the necessary results on which area of the buildings is showing the most deterioration. In this way, steps can be taken to analyze what could be the possible causes that could be prevented to make the infrastructure look more modern and more useful over the years.

Regarding the methodology that has been worked in class and according to the information observed, we would say that it is a segmentation methodology, which seeks to group the possible years of greater activity and in this way obtain more relevant information on whether there are similarities or if they have one or more aspects in common with previous years. In addition, the main idea is to improve the functionality of the homes by updating their interiors, such as the facade of the buildings, as this could improve the appearance of the homes and make better use of the property.

To obtain more precise data on the amount of money that has been spent on housing in recent years, it would be necessary to determine the areas of the perimeter that are abandoned according to the year of construction and the number of renovations. To do this, classification algorithms are used to classify the perimeter areas into abandonment categories. For example, areas with high abandonment, areas with moderate abandonment, areas without abandonment. This will allow us to know the estimated cost of the changes that have been made within the property. Then, with this information, a percentage of money could be considered for unforeseen events that may arise over time. However, for this budget to be as tight as possible, it must be taken into account that it will vary depending on the location of the place, the size of the house, the number of people who live in the place and the amount of remodeling that is carried out or have done to date.

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