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| **Synthetic Data Challenge** | | |
| 130\_Recruitment | Date: | 26/02/2022 |
| Performed by: | (insert name) |

A picture containing tray, tableware, dishware

Description automatically generated

# Introduction

“95% of Machine Learning lays in Data”. We have the same belief. But to get the right data is 99,9% of time. This challenge deals with a small part of this mammoth task. Specifically, it deals with creating randomized environments that can be used to simulate real-world scenarios, or generate synthetic data, further used for training Machine Learning models.

Recommended time limit: ~ 8 hours

# Challenge Description

In this challenge you must combine your creative and coding skills in order to create randomized virtual environments.

Your mission, shall you choose to accept it, is to create a virtual room in a game engine of your choice that must contain, at minimum:

* Walls, windows, and a door (the usual suspects in a room)
* 2 different chairs
* A table
* A plant on the table
* A mug on the table
* Anything else you consider necessary

Feel free to take these objects from any public place, no need to design anything.

Then, using code, you must randomize the above mentioned such that at least 10,000 different variations of the above mentioned can be created. The versions must vary in:

* Position of objects/camera
* Lighting + optionally, weather
* Textures of objects
* Optionally, types of objects – for example you can change the type of chairs in some variations, but again, by code

An important condition is that all variations must be “realistic”. This means:

* No flying mugs or plates, all must sit on the table
* No objects blocking the door
* Anything else that you wouldn’t normally find in your house

Make sure to export the renders in a user-friendly format, so that we can access and review them :).

You are free to extend the environment, add more objects, etc. Showcase your skills and passions.

## A dining room table with chairs Description automatically generated with low confidence

## Recommendations for chapter 3

- You are free to use any software/resources available online. The internet is your friend.

- Write down ideas, thoughts, issues you had and how you overcame them - be brief and on point

- What different solutions are available and why some were chosen over others

- Extra points for well documented research & code

- Track your time

At the end, send this document with chapters 3 and 4 filled in, and any other code/video/image/links - using a service such as [WeTransfer](https://wetransfer.com/) if needed, or a single .zip archive to [octavian@dotlumen.com](mailto:octavian@dotlumen.com) and [cornel@dotlumen.com](mailto:cornel@dotlumen.com) with the subject "[SD Challenge] Firstname\_Lastname". Feel free to add your comments in the email.

**Have fun!**

# Implementation

// TODO

# References