Heikki Brotkin

Python Assignment
Python Scripting in Blender

Assignment Instructions
Python programming and data processing

2023

Kaakkois-Suomen
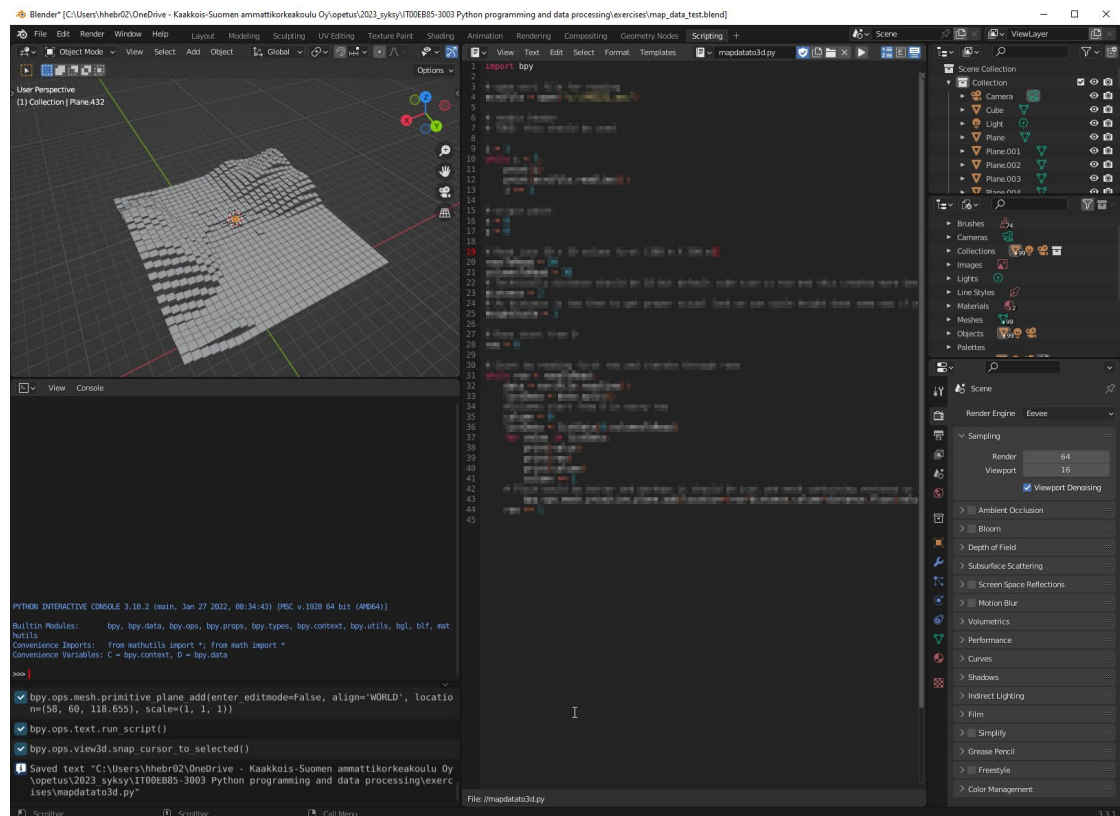ammattikorkeakoulu

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1   INTRODUCTION

This is a basic version of an assignment that is planned to be done in the end of the python course this semester.

Basic idea is to read height data from a file and generate a basic 3D representation of it.

There is no need to do or learn 3D modelling even though 3D modelling software is used. It is here mainly as an example where python is used. Python is used as a scripting language in many places.

Here is a picture of one possible result.

2   ASSIGNMENT DESCRIPTION

Idea in this assignment is to read in a file that contains height info for maps and produce a simple 3D model by using that data. Most basic version of this application uses 3D modelling program Blender that can be extended using python scripts. The data is downloaded from National land survey of Finland.

That is a national institute that provides data licensed by creative commons license.

It is good to notice that there is a huge amount of data in the file. Whole data cannot be converted to this kind of simple model of planes. Instead, I have been using just 30 X 30 values (first 30 columns from first 30 rows) from the beginning of file. Creating a model of the whole file would require different approach or very powerful computer.

Result should be a code that reads the file and creates a 3D representation, for example, like one in the picture above.

3   WHAT IS NEEDED TO COMPLETE THE ASSIGNMENT

- Blender 3d modelling software: https://www.blender.org/
  - o   (Installation covers also required python binaries)
- Information about the Blender python API: https://docs.blender.org/api/current/
- Information about the esri file format: https://en.wikipedia.org/wiki/Esri_grid
- File to read: M5221.asc (ask from teacher)
- General knowledge of python language

4   WHAT APPLICATION SHOULD CONTAIN

Acceptable application requires following:
- File reading
- Parsing the file content
- Loop to read rows
- Loop to read columns
- Drawing 3D objects based on the read values

5   WHAT NEEDS TO BE RETURNED

- Similar screenshot as above. Screenshot shows the 3D representation and script view.
- Code in a separate .py file

You also need to understand the code and be ready to explain it in person and be able to answer questions about it.