Configuration Manual

MSc Research Project
Msc in Cloud Computing

Joan Bency
Student ID: 21222959

School of Computing
National College of Ireland

Supervisor: Prof. Punit Gupta

Student Name:	Joan Bency
Student ID:	21222959
Programme:	Msc in Cloud Computing
Year:	2023
Module:	MSc Research Project
Supervisor:	Prof. Punit Gupta
Submission Due Date:	14/08/2023
Project Title:	Configuration Manual
Word Count:	344
Page Count:	2

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Configuration Manual

Joan Bency
21222959

1 Requirements

- A compatible operating system (Windows, Linux or MacOS)

- Java Development Kit (JDK) version 8 or higher

- Eclipse IDE for Java Developers

- PureEdgeSim project

- Python versions greater than or equal to 3.7x

- mealpy (Python library)

- mealpy dependencies - numpy, scipy, pandas, matplotlib

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2 Implementation/Configuration

1. Download and install Java Development Kit(JDK) version 8 or higher.

2. Download and install Eclipse IDE for Java Developers.

3. Download the modified PureEdgeSim project

4. Extract the .zip file

5. Import the extracted PureEdgeSim project into the Eclipse IDE.

6. Convert the project into a Maven project to download all the necessary librariesMechalikh et al. (2021).

7. In the simulation_parameters.properties files in the folder Example8_settings, several of the parameters for the simulation can be changed, including the number of edge devices.

8. Run Example8.java as a Java application

9. A file will be created called data.json which will have all the details about the tasks generated and edge devices.

10. Then the Python file holding the code(e.g.: copy_of_mealpy_ga.py) for running the algorithm will be executed. The Python program takes data.json as input and generates a file called sample.json which will have task scheduling for the fog and cloud devices.

11. Then the paused execution of the simulator will be resumed and the results will be generated in Example8_output folder. Results will be in the format of graphs, tables and text files.

3   GitHub Link to the code

https://github.com/JoanBency/Metaheuristic-Algorithms-Fog-Simulation

References

Mechalikh, C., Taktak, H. and Moussa, F. (2021). Pureedgesim: A simulation framework for performance evaluation of cloud, edge and mist computing environments, *Computer Science and Information Systems* **18**(1): 43–66.