National College of Ireland

Configuration Manual

MSc Research Project
MSc in Cloud Computing

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MSc Project Submission Sheet

School of Computing

Student Name:	Ruban Thirukumaran		
Student ID:	X23163836		
Programme:	MSc in Cloud Computing	**Year:**	2024-2025
Module:	Research Project		
Lecturer:	12/12/2024		
Submission Due Date:	12/12/2024		
Project Title:	Optimizing Multi-Cloud Deployment for Microservices Using a Greedy Selection Strategy		
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I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.
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Signature: Ruban Thirukumaran

Date: 12/12/2024

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1 System Requirements

1.1 Hardware Requirements

Operating System: Windows 10
Processor: AMD Ryzen 3
System Type: 64-bit Operating System
RAM: 4 GB
Hard Disk Space:
- SSD: 256 GB
- HDD: 1 TB

Display: HD
Refresh Rate: 60HZ

1.2 Software Requirements

Python: Version 3.12
VSCode: Version 1.95.3
VsCode Extensions:
- Pylance: Yes
- Docker Extension: Yes

Docker Desktop Version: 4.3.1
Azure CLI: 2.37.0

2 Installation

1. Download the Docker Desktop.
2. Create the app.py file with the index.html in my greedy folder.
3. Open VSCode and navigate to the greedy folder.
4. Run the Flask web app Python file using Python 3.12 in VSCode:
command -python app.py
5. Install the required libraries by running the following command:
pip install flask , pip install pandas

3 Configuration

Configured my docker desktop with the wsl2 for make an image on linux based because in dokcer file I was using the python slim 3.9.

4 Usage

To use the Flask web app follow these steps:
1. Open VSCode and navigate to the extracted directory.
2. Run the Flask web app Python file (app.py):
command -python app.py

This will start your Flask application, and you can access it locally (by default on http://localhost:5000).
3. Build the Docker image:
- In VSCode, ensure the Docker extension is installed.
- Create the Dockerfile:

```
# Use the official Python image
FROM python:3.12
# Set the working directory
WORKDIR /app
# Install dependencies
COPY requirements.txt /app/
RUN pip install --no-cache-dir -r requirements.txt
# Copy the Flask app
COPY . /app/
# Expose the port Flask will run on
EXPOSE 5000
# Run the Flask app
CMD ["python", "app.py"]
```

4. Build the Docker image:
command -docker build -t ml-greedy-app .
5. Run the Docker container:
command -docker run -p 5000:5000 flask-ml-greedy-app

5 Troubleshooting

If you encounter any problems while using the Flask web app refer to the following troubleshooting tips:
1. Make sure the required libraries (e.g., flask, pandas) are installed before running the model.
2. Check the input data for errors or inconsistencies.
3. Docker Issues: Ensure Docker Desktop is running, and the Docker daemon is properly initialized.

References

References should be formatted using APA or Harvard style as detailed in NCI Library Referencing Guide available at https://libguides.ncirl.ie/referencing
You can use a reference management system such as Zotero or Mendeley to cite in MS Word.

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