

# Configuration Manual

MSc Research Project  
Cloud Computing

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Student ID: 22106227

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National College of Ireland

Supervisor: Dr. Punit Gupta

**National College of Ireland**  
**MSc Project Submission Sheet**  
**School of Computing**



**Student Name:** Hashvant Vijay Balamurugan  
**Student ID:** 22106227  
**Programme:** MSc in Cloud Computing **Year:** 2023  
**Module:** Cloud Computing Research Project  
**Lecturer:** 14.12.2023  
**Submission Due Date:** 14.12.2023  
**Project Title:** ...Enhancing Individual Privacy Preservation in Multi-tenancy Cloud Environments through Secure Multi Party Computations: A Privacy-Based Data Partitioning Strategy.....  
**Word Count:** **175 Page Count: 8**

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.

ALL internet material must be referenced in the bibliography section. Students are required to use the Referencing Standard specified in the report template. To use other author's written or electronic work is illegal (plagiarism) and may result in disciplinary action.

**Signature:** Hashvant Vijay Balamurugan

**Date:** 14.12.2023

**PLEASE READ THE FOLLOWING INSTRUCTIONS AND CHECKLIST**

Attach a completed copy of this sheet to each project (including multiple copies)	<input type="checkbox"/>
<b>Attach a Moodle submission receipt of the online project submission, to each project (including multiple copies).</b>	<input type="checkbox"/>
<b>You must ensure that you retain a HARD COPY of the project, both for your own reference and in case a project is lost or mislaid. It is not sufficient to keep a copy on computer.</b>	<input type="checkbox"/>

Assignments that are submitted to the Programme Coordinator Office must be placed into the assignment box located outside the office.

<b>Office Use Only</b>	
Signature:	
Date:	
Penalty Applied (if applicable):	

# Configuration Manual

Hashvant Vijay Balamurugan  
Student ID: 22106227

## 1 Introduction

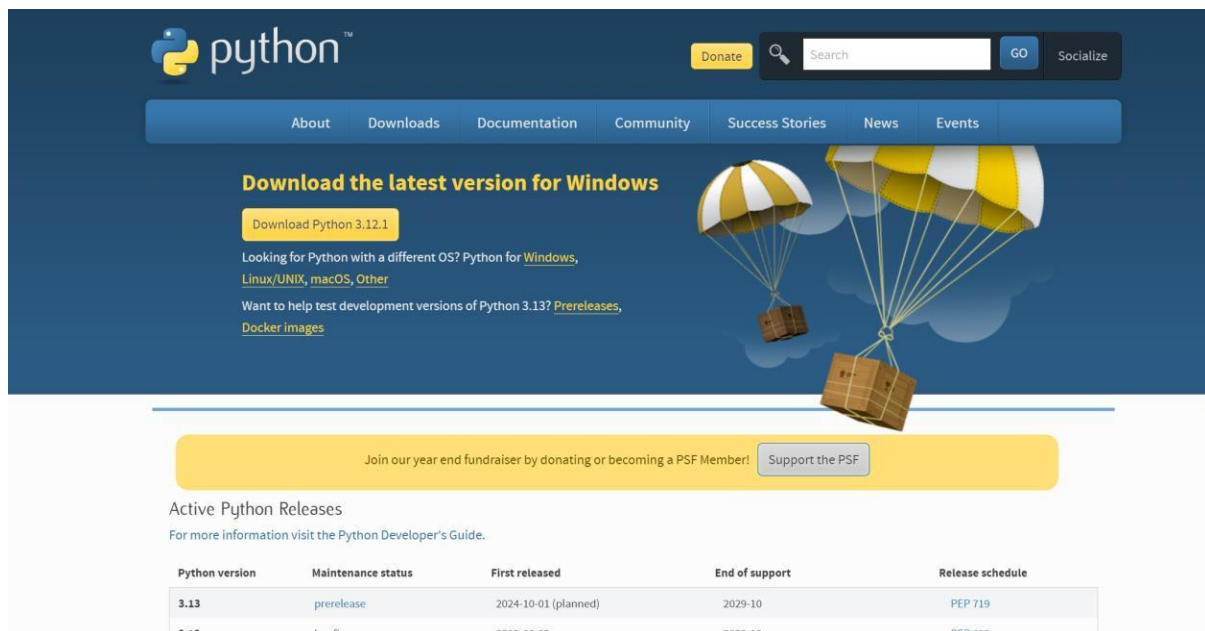
Enhanced privacy protection with nuanced security measures is implemented as shown below

## 2 Prerequisites

1. Python 3.11.8
2. VS Code
3. Kaggle ( Public Cloud SaaS)

## 3 Prerequisite Installation

Step 1: <https://www.python.org/downloads/>  
Download Python



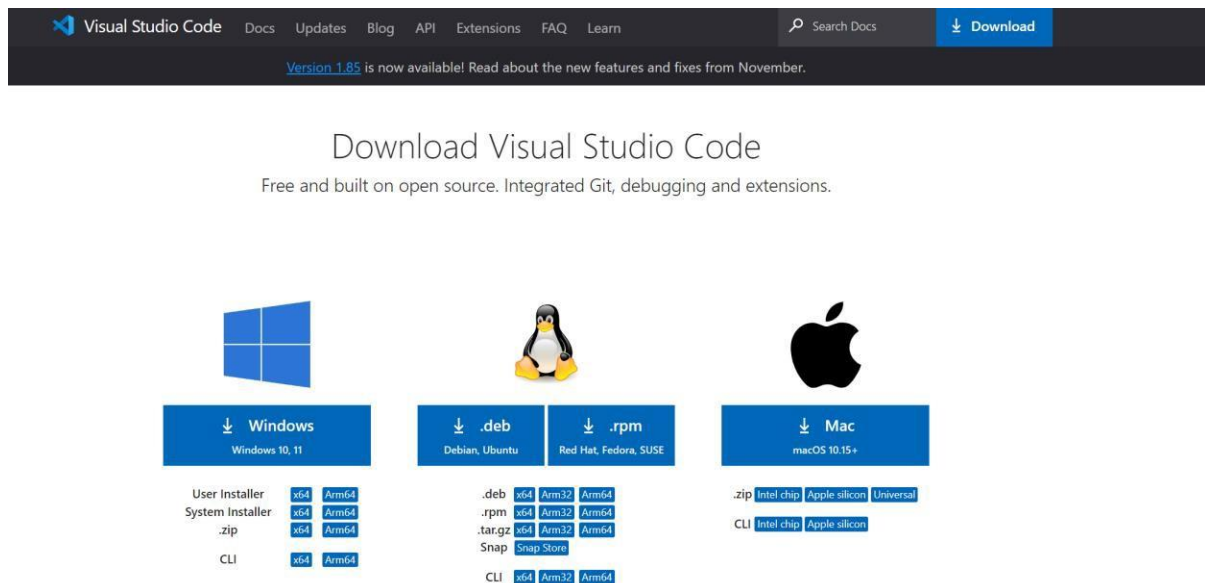
The screenshot shows the Python.org website. At the top, there is a navigation bar with the Python logo, a search bar, and a 'Socialize' button. Below the navigation bar, there is a main content area with a blue background. The main heading is 'Download the latest version for Windows'. Below this, there is a yellow button labeled 'Download Python 3.12.1'. To the right of the button, there is an illustration of two parachutes with boxes hanging from them. Below the main heading, there are links for 'Linux/UNIX, macOS, Other', 'Prereleases', and 'Docker images'. At the bottom of the screenshot, there is a yellow banner with the text 'Join our year end fundraiser by donating or becoming a PSF Member!' and a 'Support the PSF' button. Below the banner, there is a section titled 'Active Python Releases' with a table of release information.

Python version	Maintenance status	First released	End of support	Release schedule
3.13	prerelease	2024-10-01 (planned)	2029-10	PEP 719
3.12	huefix	2023-10-02	2028-10	PEP 693

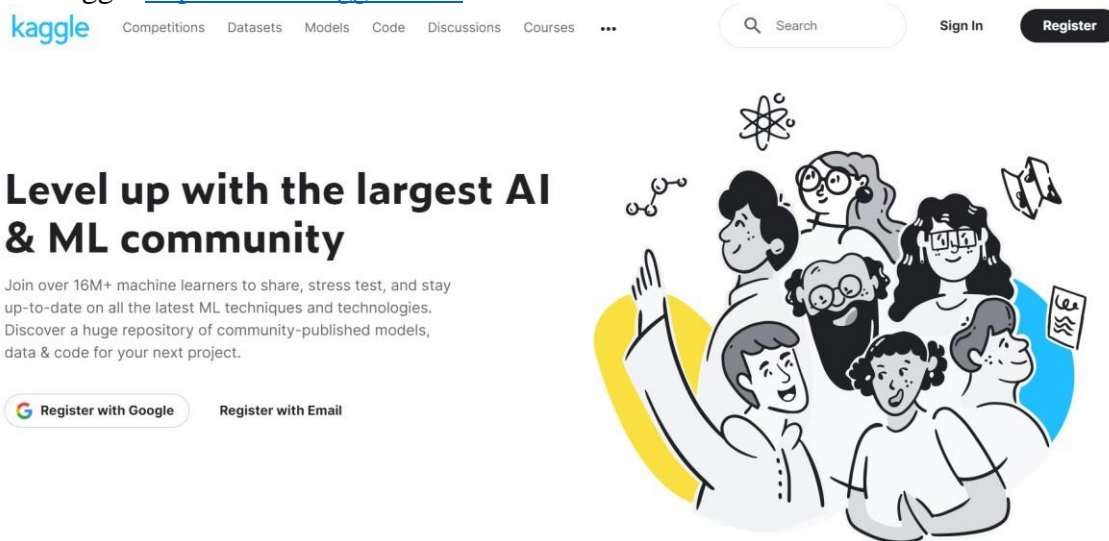
Step 2: Install Python with Generic windows msi installer

Step 3: <https://code.visualstudio.com/download>

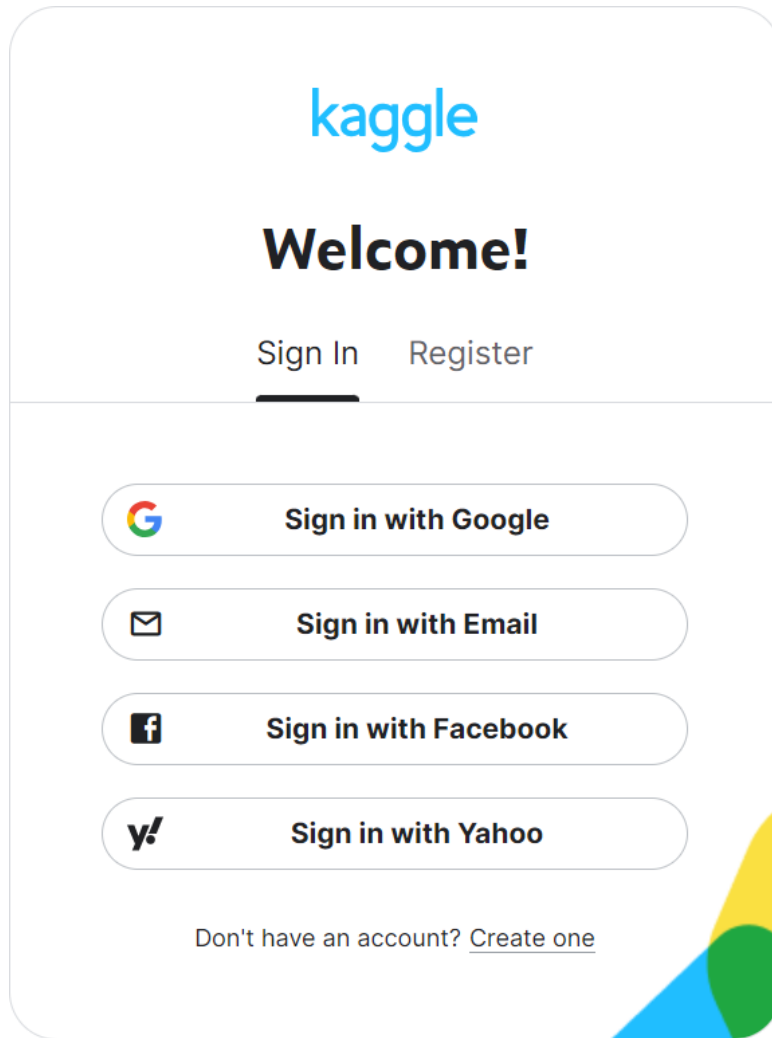
Download VS code



Step 4: Kaggle <https://www.kaggle.com/>



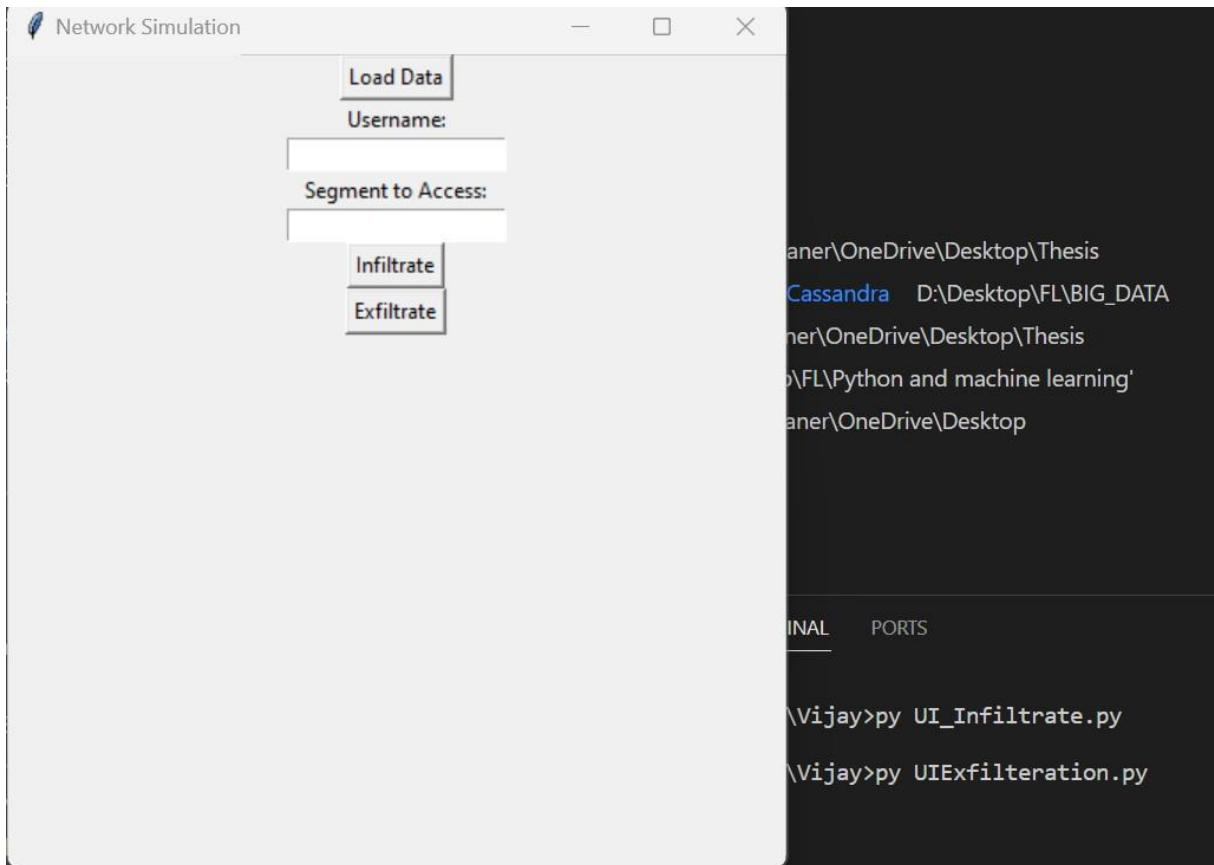
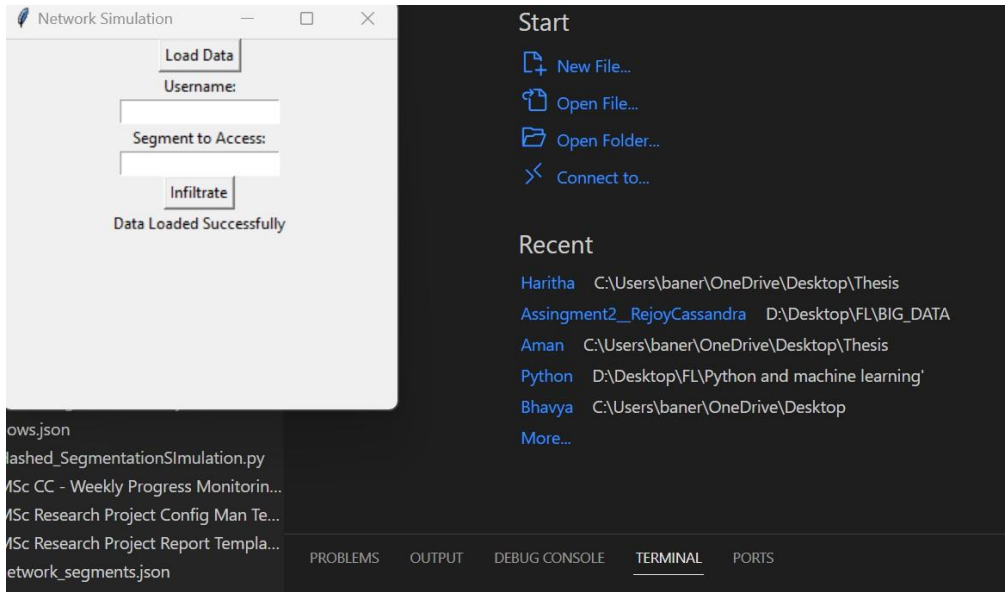
Step 5: Sign in or Register



[Contact Us / Support](#)

## 4 Running the proposed Code

- A. UI Exfiltrate and UI infiltrate can be run using the VS Code
- B. Place the Files in one folder and open it in VS Code and run the following lines
- C. `py UIExfiltration.py` or `python UIExfiltration.py`
- D. `py UI_Infiltrate.py` or `python UI_Infiltrate.py`



Step 2: Kaggle, go to link <https://www.kaggle.com/datasets/jensenbaxter/10dataset-text-document-classification>

JENSEN BAXTER · UPDATED 4 YEARS AGO

29 New Notebook Download (1 MB)

## (10)Dataset Text Document Classification

A collection of ~1000 newsgroup documents from 10 different newsgroups

Data Card Code (10) Discussion (0)

### About Dataset

#### Context

This dataset is a collection newsgroup documents. The 10 newsgroups collection has become a popular data set for experiments in text applications of machine learning techniques, such as text classification and text clustering.

#### Content

There is file (class.txt) that contains a reference to the document\_id number and the newsgroup it is associated with.

There are also 10 files that contain all of the documents, one document per newsgroup.

In this dataset, duplicate messages have been removed and the original messages only contain "From" and "Subject" headers (1000 messages total).

Each new message in the bundled file begins with these four headers:

The Newsgroup and Document\_id can be referenced against class.txt

#### Usability

7.50

#### License

Database: Open Database, Cont...

#### Expected update frequency

Never

#### Tags

- Business
- Earth and Nature
- Online Communities

### Step 3: Click on New Notebook

notebookcc7c2f5111 Draft saved

File Edit View Run Add-ons Help

+ ✂ 📄 📁 ▶▶▶ Run All Code

Draft Session off (run a cell to start) 🔌 🔄 ⋮

```

# This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python Docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load

import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)

# Input data files are available in the read-only "../input/" directory
# For example, running this (by clicking run or pressing Shift+Enter) will list all files under the input directory

import os
for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))

# You can write up to 20GB to the current directory (/kaggle/working/) that gets preserved as output when you create a version u
# You can also write temporary files to /kaggle/temp/, but they won't be saved outside of the current session

```

+ Code + Markdown

### Step 4: Import Notebook ( XLN Based Data Classification GDPR, PCIDSS )

notebookccc7c2f5111 Draft saved

File Edit View Run Add-ons Help

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```

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```

+ Code + Markdown

✕ Import notebook

File Link GitHub

Make Memory tabs so i apps

📄

Drag & drop file to up  
(e.g., .ipynb, .py)

or

Browse Files

## Step 5: Run all.

XLN Based Data Classification GDPR, PCID...

File Edit View Run Add-ons Help

Share Save Version 2

+ 🔍 📄 ▶ ▶▶ Run All Code ▾

Draft Session off (run a cell to start) 🔌 🔄 ⋮

```

import tensorflow as tf
import tensorflow_hub as hub
import pandas as pd
from sklearn.model_selection import train_test_split
import numpy as np
import re
import unicodedata
import nltk
from nltk.corpus import stopwords
from tensorflow import keras
from tensorflow.keras.layers import Dense, Dropout, Input, Reshape
from tqdm import tqdm
import pickle
from sklearn.metrics import confusion_matrix, f1_score, classification_report
import matplotlib.pyplot as plt
import itertools
from sklearn.utils import shuffle
from tensorflow.keras import regularizers
from transformers import *
from transformers import BertTokenizer, TFBertModel, BertConfig, TFDistilBertModel, DistilBertTokenizer, DistilBertConfig
import numpy as np
import pandas as pd
# https://swatimeena989.medium.com/distilbert-text-classification-using-keras-c1201d3a3d9d
from sklearn import preprocessing
import warnings
warnings.filterwarnings("ignore")

```

/opt/conda/lib/python3.10/site-packages/scipy/\_init\_\_.py:146: UserWarning: A NumPy version >=1.16.5 and <1.23.0 is required for this version of SciPy (detected version 1.24.3)
warnings.warn(f"A NumPy version >={np\_minversion} and <{np\_maxversion}")
/opt/conda/lib/python3.10/site-packages/transformers/deepspeed.py:23: FutureWarning: transformers.deepspeed module is deprecated and will be removed in a future version. Please import deepspeed modules directly from transformers.integrations
warnings.warn(
/opt/conda/lib/ovthon3.10/site-packaees/transformers/generation utils.ov:24: FutureWarning: Importing 'GenerationMixin' from 'src/transformers/generati

**Notebook**

Data

+ Add Data 📄

Input

10dataset-text-document-classification

Output

/kaggle/working

Models

Notebook options

ACCELERATOR

GPU P100

Quota: 00:43 / 30 hrs

LANGUAGE

Python

PERSISTENCE

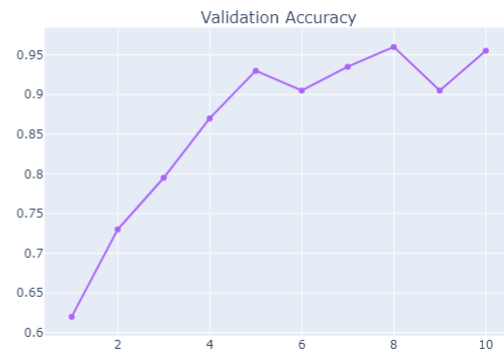
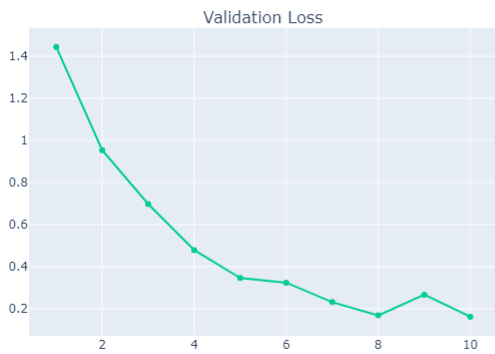
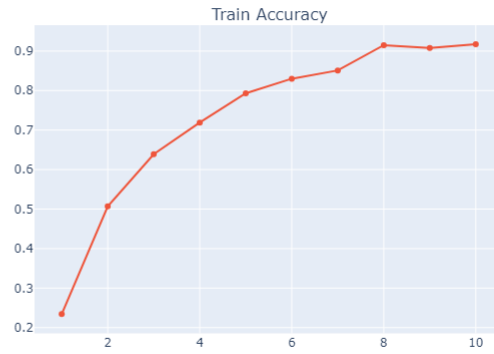
No persistence

ENVIRONMENT

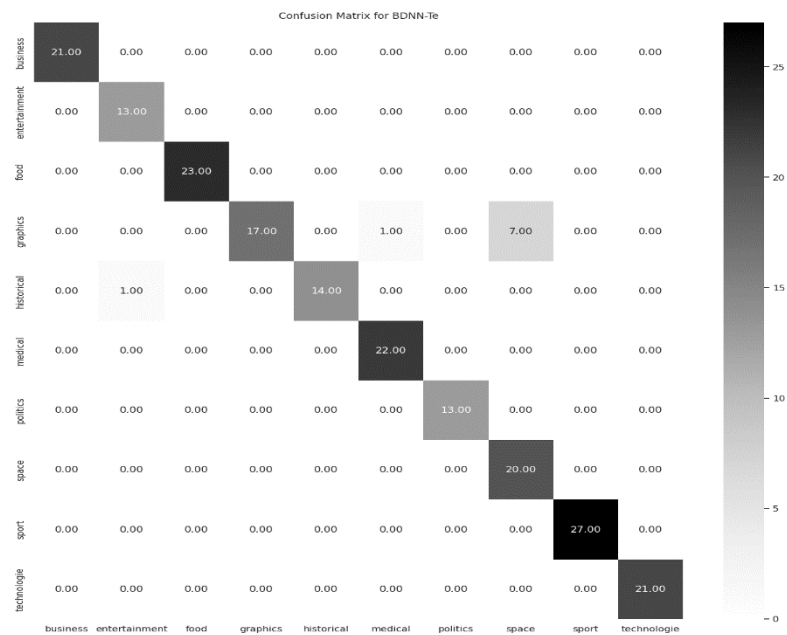


# Training Time

Bert Hybrid Dense Neural Network



# Confusion Matrix



## References

Microsoft. (2021). *Visual Studio Code*. Available at: <https://github.com/microsoft/vscode>

*Baxter, J. (Year). 10Dataset - Text Document Classification. Available at: <https://www.kaggle.com/datasets/jensenbaxter/10dataset-text-document-classification>*  
*Feng, G. and Buyya, R. (2016). Maximum revenue-oriented resource allocation in cloud, IJGUC 7(1): 12–21.*