CSE4003

—

Cyber Security

PBL-1

Yerramalli Sai Sreekar / 20BCE1296

C1 / Slot

Dr. Subbulakshmi T/ Professor

Environment Setup:

1. Install Python: The first step is to install Python, which is the primary programming language used for implementing machine learning algorithms. You can download and install the latest version of Python from the official website.

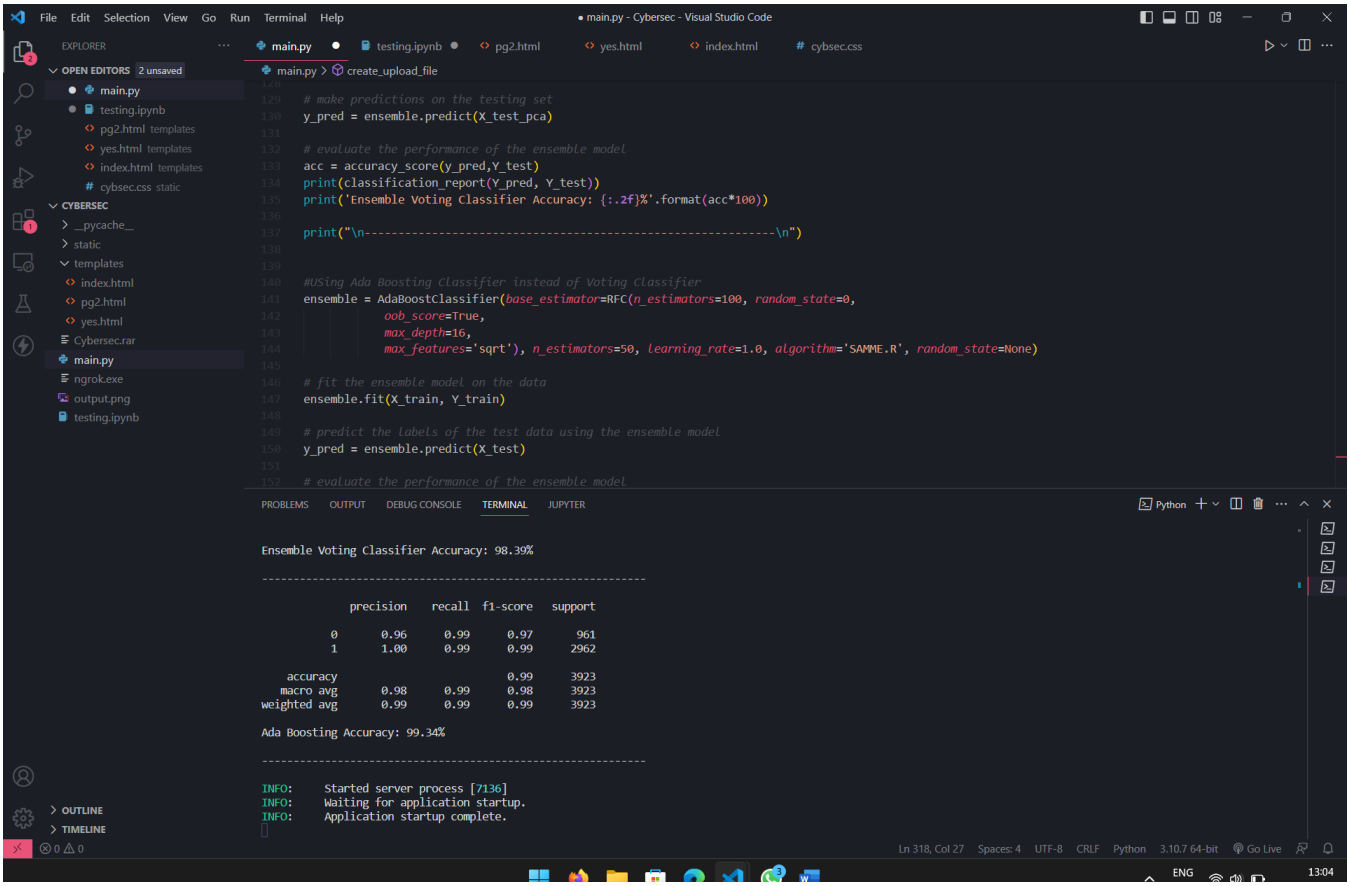
2. Install Required Libraries: The next step is to install the required Python libraries for the project. Some of the libraries you may need include NumPy, Pandas, Scikit-learn, Matplotlib, Flask, and TensorFlow. You can use the pip package manager to install these libraries. For example, to install Scikit-learn, you can run the following command in the terminal:

```
pip install scikit-learn

pip install pandas

pip install pefile

pip install seaborn

pip install matplotlib

pip install fastapi

pip install uvicorn[standard]

pip install pydantic
```

3. Download the Dataset: You need a dataset of known malware and non-malware files to train and test the machine learning models. You can download publicly available datasets such as the Malimg dataset or create your own dataset by collecting malware samples.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	Name	e_magic	e_cblp	e_cp	e_crlc	e_cparhdr	e_minallo	e_maxallo	e_ss	e_sp	e_csum	e_ip	e_cs	e_lfarlc	e_ovno	e_oemid	e_oeminfo	e_lfanew	Machine	NumberOf	TimeDate	PointerTo	NumberOf Siz
2	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	248	34404	6	1.24E+09	0	0
3	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	240	332	5	1.37E+09	0	0
4	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	256	332	6	1.44E+09	0	0
5	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	128	332	7	1.35E+09	0	0
6	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	128	332	7	1.39E+09	0	0
7	VirusShare	23117	80	2	0	4	15	65535	0	184	0	0	0	64	26	0	0	256	332	8	7.09E+08	0	0
8	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	248	332	5	1.39E+09	0	0
9	VirusShare	23117	80	2	0	4	15	65535	0	184	0	0	0	64	26	0	0	256	332	8	7.09E+08	0	0
10	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	256	332	4	1.41E+09	0	0
11	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	224	332	7	1.36E+09	0	0
12	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	224	332	7	1.43E+09	0	0
13	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	264	332	4	1.2E+09	0	0
14	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	264	332	6	1.41E+09	0	0
15	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	256	34404	8	1.25E+09	0	0
16	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	224	332	3	1.3E+09	0	0
17	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	248	332	5	1.39E+09	0	0
18	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	248	332	3	1.17E+09	0	0
19	VirusShare	23117	144	3	0	4	0	17744	0	332	1	29305	15462	19547	29295	267	6	12	332	1	1.01E+09	1.92E+09	1.56E+09
20	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	224	332	5	1.4E+09	0	0
21	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	128	332	3	1.43E+09	0	0
22	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	240	332	3	1.43E+09	0	0
23	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	184	332	4	1.31E+09	0	0
24	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	216	332	5	1.26E+09	0	0
25	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	256	34404	8	1.24E+09	0	0
26	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	240	332	3	1.4E+09	0	0
27	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	176	332	3	1.35E+09	0	0
28	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	128	332	6	1.39E+09	286720	5073
29	VirusShare	23117	80	2	0	4	15	65535	0	184	0	0	0	64	26	0	0	256	332	8	7.09E+08	0	0
30	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	248	332	4	1.16E+09	0	0
31	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	256	332	4	1.29E+09	0	0
32	VirusShare	23117	144	3	0	4	0	65535	0	184	0	0	0	64	0	0	0	200	332	5	1.36E+09	0	0

4. Set up the Project Structure: Create a project folder and organize the code into different directories based on the functionality. For example, you can have separate directories for data preprocessing, feature extraction, model training, model testing, and frontend.
5. Configure the Development Environment: Configure your development environment by setting up a code editor such as VS Code or PyCharm, and installing any necessary plugins or extensions. You can also set up a virtual environment to isolate the project dependencies from other Python projects on your machine.



6. Test the Environment: Test the environment by running a sample script that imports the required libraries and performs a simple operation such as loading the dataset or printing a message to the console.