

## Practical No. 9

Aim: Study and Installation of Weka AI tool

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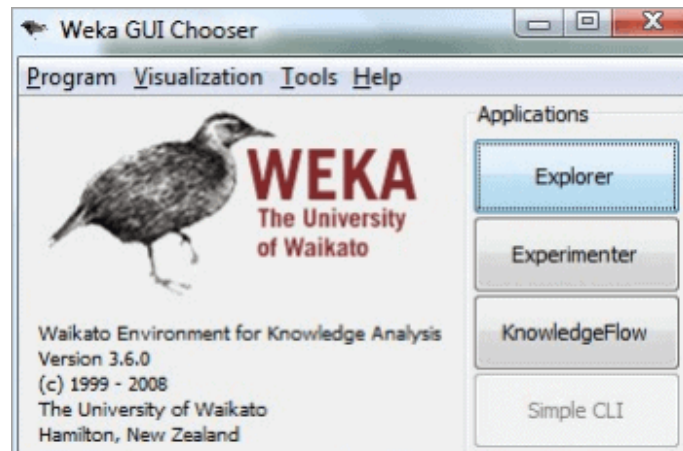
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Subject: PE-II

Date:

Theory:



What is Weka?

**Weka** (Waikato Environment for Knowledge Analysis) is a popular suite of machine learning software written in Java. It is developed by the University of Waikato, New Zealand.

### ❖ Key Features:

- GUI-based and user-friendly

- Supports various machine learning algorithms (classification, regression, clustering)
- Data pre-processing tools
- Visualization tools
- Supports scripting and Java API for developers ❖ **Applications:**
- Academic research
- Data mining projects
- Rapid prototyping of ML models
- Teaching and learning machine learning concepts

❖ **Core Components:**

1. **Explorer** – Main GUI for data analysis
2. **Experimenter** – For running experiments and comparing algorithms
3. **Knowledge Flow** – Visual pipeline-style interface for data flow
4. **Simple CLI** – Command-line interface

**Installation of Weka:**

Step-by-step Instructions:

**For Windows:**

1. **Go to official website** <https://ml.cms.waikato.ac.nz/weka/>



2. **Click on the "Download" tab**
3. **Choose Windows Installer (.exe file)**
4. **Download and run the installer**  
Follow the setup wizard steps (Next → Install → Finish)
5. **Launch Weka** from the Start Menu or desktop icon.

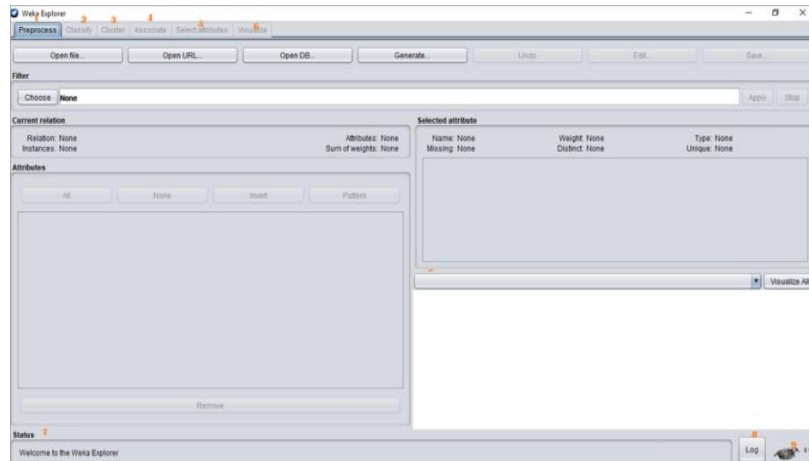
## Running Your First Machine Learning Model in Weka:

### Step 1: Open Weka:

- After installation, launch the **Weka GUI Chooser**.



### Step 2: Open "Explorer":



### Step 3: Load a Dataset:

- Click **Open File**
- Navigate to: /data/iris.arff
- This is a sample dataset with flower measurements.

```
SimpleCLI
> -java weka.classifiers.trees.J48 -t c:/temp/iris.arff

capabilities <classname> <args>
    Lists the capabilities of the specified class.
    If the class is a weka.core.OptionHandler then
    trailing options after the classname will be
    set as well.

cls
    Clears the output area.

echo msg
    Outputs a message.
```

### Step 4: Choose a Classifier:

- Go to the **"Classify" tab**
- Click **"Choose"** → **trees** → select **J48 (decision tree)**



### Step 5: Click "Start":

- Weka will train the model and show results like:

- Accuracy
- Confusion Matrix
- Precision, Recall, F-measure

### Advantages of Using Weka:

- Easy to use, even for beginners
- Excellent for quick testing and prototyping
- Includes many algorithms without needing to code
- Good for educational and research purposes

### Limitations of Weka:

- Not suitable for very large datasets (in-memory only)
- Limited support for deep learning
- GUI can feel outdated

### Conclusion:

Weka is a valuable tool for anyone learning or experimenting with machine learning. It simplifies data pre-processing, model training, and evaluation through

its user-friendly interface. Though it may not be suited for large-scale production systems, it is ideal for teaching, research, and prototyping.