Java Libraries

➢ Java AWT (Abstract Window Toolkit)

- **Version**: Included in Java SE Development Kit (JDK) versions.
- **Description**: Provides a set of classes for creating and managing graphical user interface (GUD) elements, such as windows, buttons, and text fields.
- **Installation:** Included in the JDK, no separate installation needed.

➢ Java.awt.Graphics

- **Version**: Part of the Java AWT library.
- **Description**: Graphics class provides methods for drawing shapes, text, and images onto graphical surface.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.Color

- **Version**: Part of the Java AWT library.
- **Description**: Color class represents a color using RGB values.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.Dimension:

- **Version**: Part of the Java AWT library.
- **Description**: Dimension class represents the size of a component in terms of width and height.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.Graphics2D

- **Version**: Part of the Java AWT library.
- **Description**: Graphics2D class extends the Graphics class to provide more sophisticated rendering capabilities.

- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.RenderingHints

- **Version**: Part of the Java AWT library. –
- **Description:** RenderingHints class provides hints tothe rendering engine about how to render shapes and text.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.geom.Area

- **Version**: Part of the Java AWT library.
- **Description**: Area class represents geometric shapes as areas.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.geom.Rectangle2D

- **Version**: Part of the Java AWT library.
- **Description**: Rectangle2D class represents a rectangle with floating-point coordinates.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.geom.RoundRectangle2D

- **Version**: Part of the Java AWT library.
- **Description**: RoundRectangle2D class represents a rectangle with rounded corners.
- **Installation**: Included in the JDK, no separate installation needed.

➢ javax.swing.JPanel

- **Version**: Included in Java SE Development Kit (JDK) versions.
- **Description**: JPanel class provides a container for organizing components in a Swing-based GUI application.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.Shape

- **Version**: Part of the Java AWT library.

- **Description**: Shape interface represents geometric shapes.
- **Installation**: Included in the JDK, no separate installation needed.

➢ javax.swing.event.DocumentEvent

- **Version**: Part of Java SE Development Kit (JDK) versions.
- **Description**: Document Event interface represents changes made to a document, such as text insertion or removal.
- **Installation**: Included in the JDK, no separate installation needed.

➢ javax.swing.event.DocumentListener

- **Version**: Part of Java SE Development Kit (JDK) versions.
- **Description**: DocumentListener interface listens for changes in the contents of a document.
- **Installation**: Included in the JDK, no separate installation needed.

➢ javax.swing.text.MaskFormatter

- **Version**: Part of Java SE Development Kit (IDK) versions.
- **Description**: MaskFormatter class formats and enforces formatting of textual input, such as phone numbers or postal codes.
- **Installation**: Included in the JDK, no separate installation needed.

➢ javax.swing.table.DefaultTableModel

- **Version**: Part of Java SE Development Kit (JDK) versions.
- **Description**: DefaultTableModel class provides a default implementation of the TableModel interface for storing and manipulating tabular data.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt(Wild card import):

- **Version**: Included in Java SE Development Kit JDK) versions.
- **Description**: The java.awt package contains classes for creating and managing graphical user interface (GUI) elements, such as windows, buttons, and menus.
- **Installation**: Included in the JDK, no separate installation needed.

➢ javax.swing.text (Wild card import):

- **Version**: Included in Java SE Development Kit JDK) versions.
- **Description**: The javax.swing.text package contains classes and interfaces for working with text in Swing components, such as text fields and text areas.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.event.KeyAdapter

- **Version**: Part of Java SE Development Kit (JDK) versions.
- **Description**: KeyAdapter class provides empty implementations of keyboard-related even listener methods, allowing subclasses to override only the methods they need.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.event.KeyEvent

- **Version**: Part of Java SE Development Kit (JDK) versions.
- **Description**: KeyEvent class represents a keyboard event, such as a key press or release.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.event.ActionEvent

- **Version**: Part of Java SE Development Kit (JDK) versions.
- **Description**: ActionEvent class represents an action performed by a user, such as clicking a button or selecting a menu item.
- **Installation**: Included in the JDK, no separate installation needed.

➢ java.awt.event.ActionListener

- **Version**: Part of Java SE Development Kit IDK) versions.
- **Description**: ActionListener interface listens for action events, typically generated by GUI components like buttons or menu items.
- **Installation**: Included in the JDK, no separate installation needed.

java.awt.event.MouseAdapter

- **Version**: Part of Java SE Development Kit (JDK) versions.
- **Description**: MouseAdapter class provides empty implementations of mouse-related event listener methods, allowing subclasses to override only the methods they need.
- **Installation**: Included in the JDK, no separate installation needed.

java.awt.event.MouseEvent

- **Version**: Part of Java SE Development Kit JDK) versions.
- **Description**: MouseEvent class represents a mouse event, such as a mouse click or mouse movement.
- **Installation**: Included in the JDK, no separate installation needed.

java.sql. (JDBC - Java Database Connectivity)

- **Version**: Included in Java SE Development Kit JDK) versions.
- **Description**: Provides Java applications with a standard interface for accessing relational databases.
- **Installation**: Included in the JDK, no separate installation needed.

java.sql.Connection

- **Version**: Part of Java SE Development Kit IDK) versions.
- **Description**: Connection interface represents a connection to a database, allowing for communication and interaction with the database.
- **Installation**: Included in the JDK, no separate installation needed.

- **java.sql.DriverManager**
    - **Version**: Part of Java SE Development Kit (JDK) versions.
    - **Description**: DriverManager class manages a list of database drivers, allowing applications to establish connections to databases.
    - **Installation**: Included in the JDK, no separate installation needed.
- **java.sql.PreparedStatement**
    - **Version**: Part of Java SE Development Kit (JDK) versions.
    - **Description**: PreparedStatement interface represents a precompiled SQL statement, allowing for efficient execution of parameterized SQL queries.
    - **Installation**: Included in the JDK, no separate installation needed.
- **java.sql.SQLException**
    - **Version:** Part of Java SE Development Kit JDK) versions.
    - **Description**: SQLException class represents errors or warnings generated by the JDBC API during database access.
    - **Installation**: Included in the JDK, no separate installation needed
- **java.util. TimeZone**
    - **Version**: Included in Java SE Development Kit JDK) versions.
    - **Description**: TimeZone class represents a time zone offset from Greenwich Mean Time(GMT).
    - **Installation**: Included in the JDK, no separate installation needed.
- **javax.swing.border.LineBorder**
    - **Version**: Part of Java SE Development Kit JDK) versions.
    - **Description**: LineBorder class provides a simple border with a specified color and width.
    - **Installation**: Included in the JDK, no separate installation needed.

- **java.awt.geom.RoundRectangle**
  - **Version**: Included in Java SE Development Kit (JDK) versions.
  - **Description**: RoundRectangle2D class represents a rectangle with rounded corners.
  - **Installation**: Included in the JDK, no separate installation needed.
- **javax.swing.border.AbstractBorder**
  - **Version**: Part of Java SE Development Kit JDK) versions.
  - **Description**: AbstractBorder class provides a base class for creating custom borders for Swing components.
  - **Installation**: Included in the JDK, no separate installation needed.
- **java.awt.event.FocusAdapter**
  - **Version**: Part of Java SE Development Kit JDK) versions.
  - **Description**: FocusAdapter class provides empty implementations of focus-related event listener methods, allowing subclasses to override only the methods they need.
  - **Installation**: Included in the JDK, no separate installation needed.
- **java.awt.event.FocusEvent**
  - **Version**: Part of Java SE Development Kit JDK) versions.
  - **Description**: FocusEvent class represents a focus change event, such as when a component gains or loses focus.
  - **Installation**: Included in the JDK, no separate installation needed.
- **java.util.Vector**
  - **Version**: Included in Java SE Development Kit JDK) versions.
  - **Description**: Vector class implements a dynamic array, allowing for the storage of elements that can grow or shrink in size.
  - **Installation**: Included in the JDK, no separate installation needed.

- **javax.swing.table.TableColumnModel**
  - **Version**: Included in Java SE Development Kit IDK) versions.
  - **Description**: TableColumnModel interface represents the model for a table's columns, allowing for the management and customization of column properties.
  - **Installation:** Included in the JDK, no separate installation needed.

Python libraries

1. PYAUTOGUI

Version: 4.5.3

Description: To import the `pyautogui` module, which allows you to programmatically control the mouse and keyboard to automate interactions with the GUI, PYAUTOGUI lets your Python scripts control the mouse and keyboard to automate interactions with other applications. The API is designed to be simple. PyAutoGUI works on Windows, macOS, and Linux, and runs on Python 2 and 3.
use the following code:

```python Import pyautogui ```

PYAUTOGUI has several features:

1.Moving the mouse and clicking in the windows of other applications.
2.Sending keystrokes to applications (for example, to fill out forms).
3.Take screenshots, and given an image
4.Locate an application's window, and move, resize, maximize, minimize, or close it

2. OS

Version: 4.5.3

Description: OpenCV (Open-Source Computer Vision Library) is an open-source computer vision and machine learning software library. The OS module in Python provides a way of using operating system dependent functionality. The OS module allows you to interact with the operating system, such as manipulating file paths, directories, environment variables, and executing system commands.

Installation:
For Python 3: pip install OpenCV-python

3. SUBPROCESS

Version: Standard library (no separate version)

Description: Importing the `subprocess` module allows you to spawn new processes, connect to their input/output/error pipes, and obtain their return codes. This can be useful for running system commands or executing other programs from within your Python script
```

4. TKINTER

Version: Standard library (no separate version)

Description: Importing `tkinter` allows you to use the tkinter module in Python for creating GUI applications. With tkinter, you can create various graphical user interface (GUI) elements such as windows, buttons, labels, entry fields, and more. You can also arrange these elements in different layouts and respond to user interactions.

Installation: This is a standard Python library and does not require separate installation.

5. LOGGING

Version: 2.2.9

Description: Importing the logging module allows you to incorporate logging capabilities into your Python code for debugging and error tracking. Here's a simple example of how to import the
logging module:

```python Import logging ```

After importing the logging module, you can use its functions and classes to log messages at various levels (e.g., debug, info, warning, error, critical) throughout your code.

6. SYS

Version: 1.21.5

Description: Importing the `sys` module provides access to some variables used or maintained by the Python interpreter and to functions that interact strongly with the interpreter.
Here's how you can import it:

```python Import sys ```

The `sys` module provides information about constants, functions, and methods of the Python interpreter. It also provides access to command-line arguments via `sys.argv`, among other things.

7. SHUTIL

Version: 4.5.3

Description: Importing the `shutil` module allows you to perform high-level file operations, such as copying, moving, and deleting files and directories.
Here's how to import it:

```python Import shutil ```

With the `shutil` module, you can perform tasks like copying files and directories (shutil.copy()), moving files and directories (shutil.move()), and deleting files (shutil.rmtree()).

8. GETPASS

Version: 3.12.2 python

Description: Importing the `getpass` module allows you to get a password from the user without displaying it on the screen.
Here's how to import it:

```python Import getpass ```

The `getpass` module provides a portable way to handle password prompts securely. It typically uses the underlying terminal or console's features to safely prompt the user for a password without echoing it back to the screen

9. IMPORT PLATFORM

Version: lib-platform 1.12.10

Description: Importing the `platform` module allows you to access information about the platform or operating system on which Python is running.
Here's how to import it:

```python Import platform ```

With the `platform` module, you can retrieve information such as the system's architecture (platform.architecture()), the operating system name (platform.system()), the Python version (platform.python_version()), and many other platform-specific details.

10. IMPORT TIME

Version: python documentation 3.12.2

Description: To import the `time` module, which provides various time-related functions, use the following code:

```python Import time ```

The `time` module allows you to work with time values, such as getting the current time, pausing execution for a specified duration, and converting between different time representations.

11. IMPORT CV2

Version: Python 3.4 above

Description: To import the `cv2` module, which provides computer vision functionalities including image and video processing,
use the following code:

```python Import cv2 ```

OpenCV (cv2) is a popular library for computer vision tasks such as image/video manipulation, object detection, face recognition, and more. With OpenCV, you can perform various operations on images and videos, such as reading, writing, resizing, filtering, and applying transformations.

12. NUMPY

Version: 1.24.4

Description: To import the `NumPy` module, which provides support for large, multi-dimensional arrays and matrices, along with a collection of mathematical functions to operate on these arrays,
use the following code:

```python Import NumPy as np ```

`NumPy` is a fundamental package for numerical computing in Python. It provides efficient implementations of array operations, linear algebra routines, Fourier transforms, random number generation, and more. By importing it as `np`, you can access its functions and classes using the shorter alias `np`.

13. IMPORT MYSQL CONNECTOR

Version: 8.0

Description: To import the `mysql.connector` module, which provides an interface for connecting to a MySQL database from Python,
use the following code:

```python Import mysql.connector ```
With `mysql.connector`, you can establish connections to MySQL databases, execute SQL queries, fetch results, and manage transactions. It’s a widely-used library for interacting with MySQL databases in Python applications.
```

14. IMPORT DATE-TIME

Version: 4.5.3

Description: To import the `datetime` module, which provides classes for manipulating dates and times in Python,
use the following code:

```python Import datetime ```

With the `datetime` module, you can create, manipulate, and format dates and times, calculate time differences, work with time zones, and perform various other operations related to dates and times in Python
```