

**{GUI}**

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- **framework vs library**
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# **framework vs library**

## **library:**

**A library is essentially a set of functions that you can call. Each call does some work and returns control to the programmer.**

## **framework:**

**In order to use it you need to insert your behavior into various places in the framework.**

**The framework's code then calls your code at these points**

## **example:**

**A framework is a skeleton where the application defines the "muscles" of the operation by filling out the skeleton with programmer code or other libraries**

**frameworks have deeper learning curve**

# python GUI libraries and frameworks

	type	best for	description
<b>tkinter</b>	library	Simple GUI applications	Comes pre-installed with Python, easy to use
<b>pyQT</b>	framework	Modern look	Steep learning curve, large size
<b>pyside</b>	framework	similar to pyQT	similar to pyQT
<b>kivy</b>	framework	Touch-based applications, mobile apps	-
<b>pyGTK</b>	library	Linux-based GUI applications	-
<b>wxpython</b>	library	Native Look & Feel	application will look and behave like a regular app on the operating system (Windows, macOS, or Linux)

**best choices  
based on  
documents, community and online tutorials**

**tkinter vs pyQT**

	QT	tkinter
type	framework	library
license	GPL V3 If the application you are developing is not open-source, you must pay for a commercial license	open source and free
design	final product has modern look	final product has stylish look
UI builder	yes drag and drop	no
installation	needs separate installation	included in python standard library
beginner friendly	not at all steep learning curve prerequisite: GUI exprience	yes

**vote**

**tkinter**

اپلیکیشن های ساده تر  
افراد تازه کار با GUI

**pyQT**

اپلیکیشن هایی که از نظر گرافیکی پیشرفته ترند  
نیازمند آشنایی با مفاهیم و مقدمات GUI

# **final projects**

**calculator**

**convertor(date, mass, currency, length, temperature, ...)**

**paint**

**alarm clock**

**music player**

**tick-tack-toe(XO) game(دوز)**

**school management**

**suduko game**

**online shop(digikala)**

**download manager**

**chess**

# **python setup & configuration on windows machine**

## **check python installation from CMD**

`python --version`

## **download python**

<https://www.python.org/downloads/>

## **install python**

next next next

Important:

Check the box [Add Python to "PATH"]

this makes Python accessible from the command line

## **package manager**

a tool that helps you install, update, and manage libraries (packages) in Python.

It makes it easy to use third-party modules without manually downloading and configuring them.

python's default package manager: pip

## **check pip installation**

`pip --version`



## **install/upgrade pip**

`python -m pip install --upgrade pip`

## **download and install IDE**

IDLE VSCODE ATOM PYCHARM SPYDER ...

## **hello world program**

without venv

## **virtual environment**

With Python's venv module, you can create isolated development environments that use different versions of libraries or Python itself for different projects

so for example if the module you are using is updated, it doesn't affect your project unless you say so

enabling virtual environment:

cmd in same folder as source code:

`python -m venv <path>`

enable a venv in VS Code:

open Command Palette(ctrl + shift + P)

choose [Python: Select Interpreter]

run code:

triangle icon in top right or ctrl + F5

## **resource recommendation**

corey schaffer youtube channel

<https://www.youtube.com/@coreyms>

tkinter playlist

## **persian subtitle**

youtube video settings (small gear icon in bottom right)

subtitles

auto-translate

persian

## **next session**

**pyhton basics**

**setup tkinter/QT**

**GUI hello world**