

IT3030 (PAF) – Tutorial 1

You may refer to any resource available online/offline.

Discussions are encouraged if they are on topic.

1. What is the difference between a software library and a Software framework?

Library is a collection of pre-written code that provides reusable functions or classes

Framework provides a structured environment for application development. It **dictates** the flow of the application by calling the developer's code at predefined points

Feature	Library	Framework
Control	Developer calls functions	Framework calls the developer's code (Inversion of Control - IoC)
Flexibility	More flexible, can be used anywhere	Provides structure, less flexible
Dependency	Can be used in any project	Requires following framework structure
Example	NumPy, Lodash, jQuery	Django, Angular, Spring
Learning Curve	Easier to learn and integrate into projects	Requires understanding its rules and conventions

A library helps you write code, while a framework structures how you write your code

2. “Inversion of Control” is a key distinguishing feature of a Software Framework that separates them from normal libraries. Explain the concept in your own words.

Inversion of Control (IoC): When using a library, the developer writes code that **calls** functions from the library whenever needed. However, in a framework, this control is reversed—the **framework calls the developer's code** at specific points.

Example:

Think of a **library** like ordering food at a restaurant—you (the developer) decide what to order and when. But a **framework** is like a buffet—you follow the structure set by the buffet, selecting from what is provided when needed.

3. Search the Internet and state one real world example on why it is important that “the right framework for the application should be chosen” when implementing an application.

Instagram is a popular photo-sharing social media platform. It chose Django as its back-end framework. Django's simplicity and rapid development capabilities enabled Instagram to build and iterate on features quickly.

Django's built-in security features also helped protect user data and prevent common web vulnerabilities. The scalability of Django allowed Instagram to handle the exponential growth in user base and content.

[Choosing the best Framework: Ultimate Guide with expert insights.](#)