[Youtube Live]
객체 지향 프로그래밍의 시작 - 객체를 활용한 MATLAB 프로그래밍

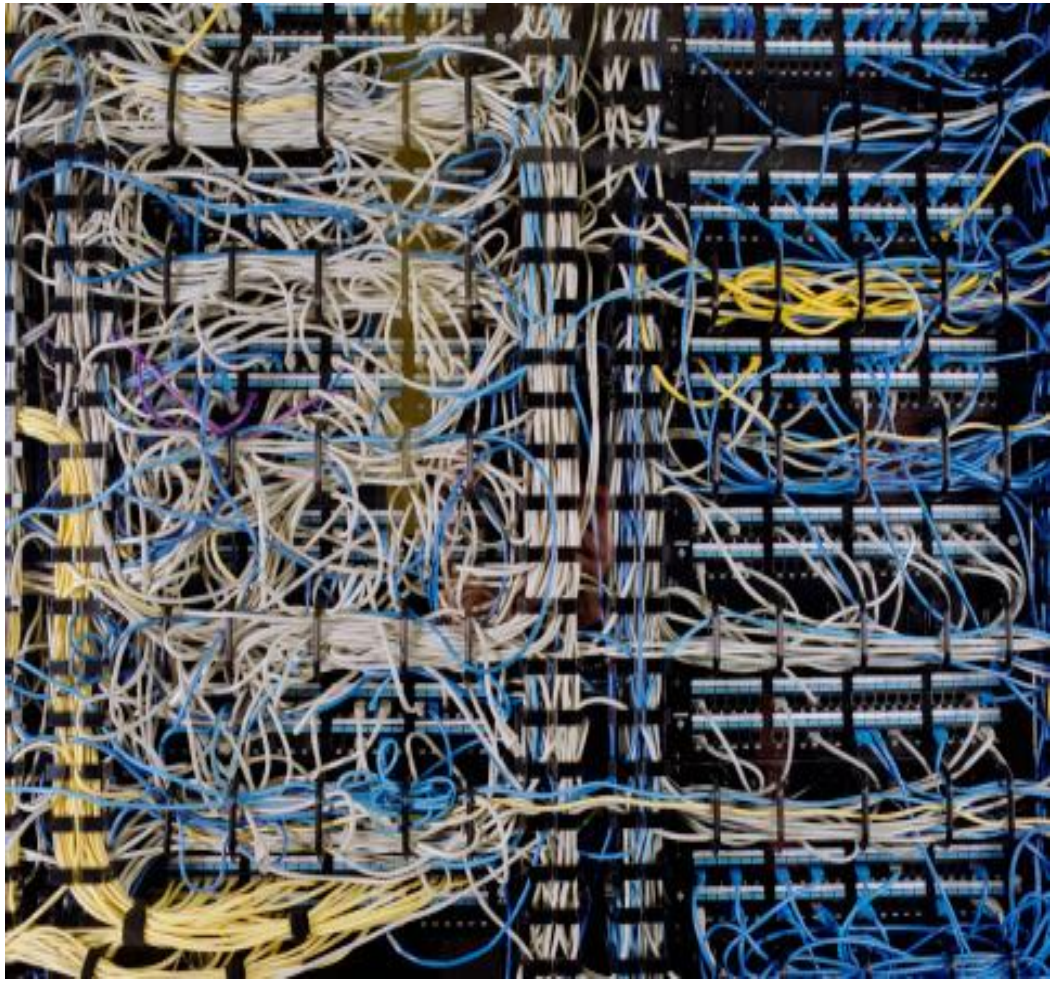
최준호 부장
Training Engineer
MathWorks Korea

Agenda

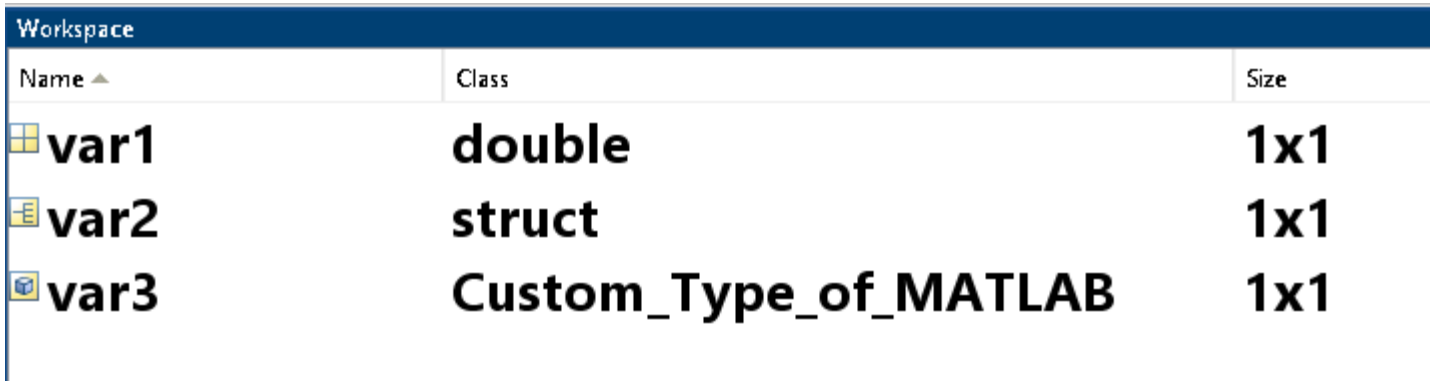
- MATLAB 에서의 객체 필요성
- Class 정의와 Object 생성
- Package folder의 활용

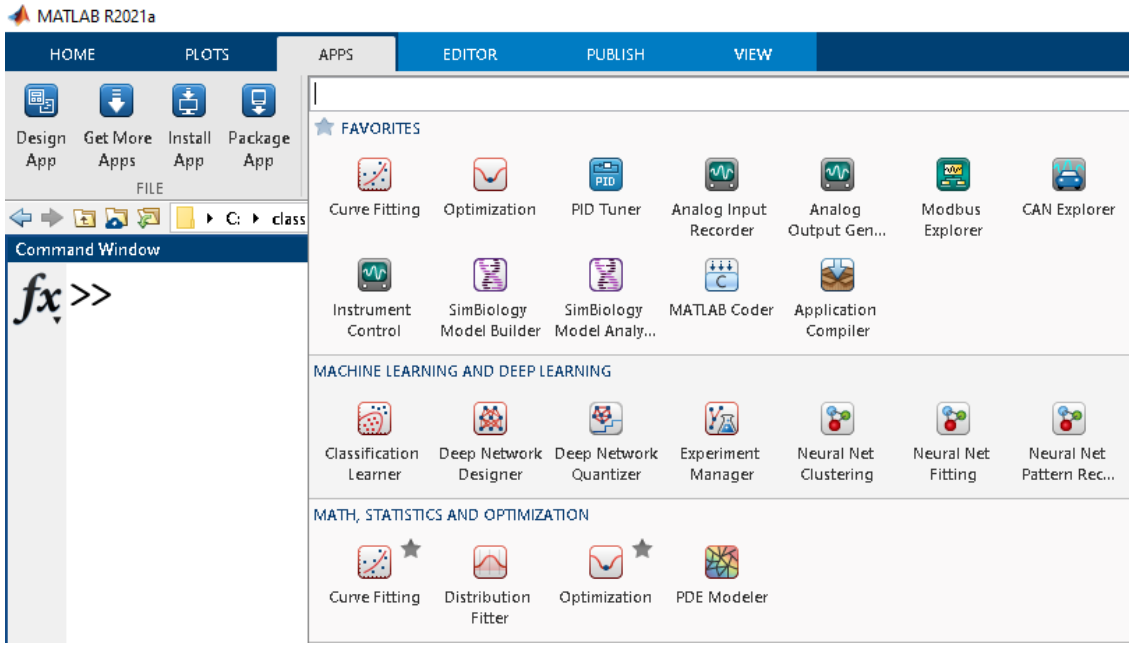
Why or When Use Object-Oriented Design

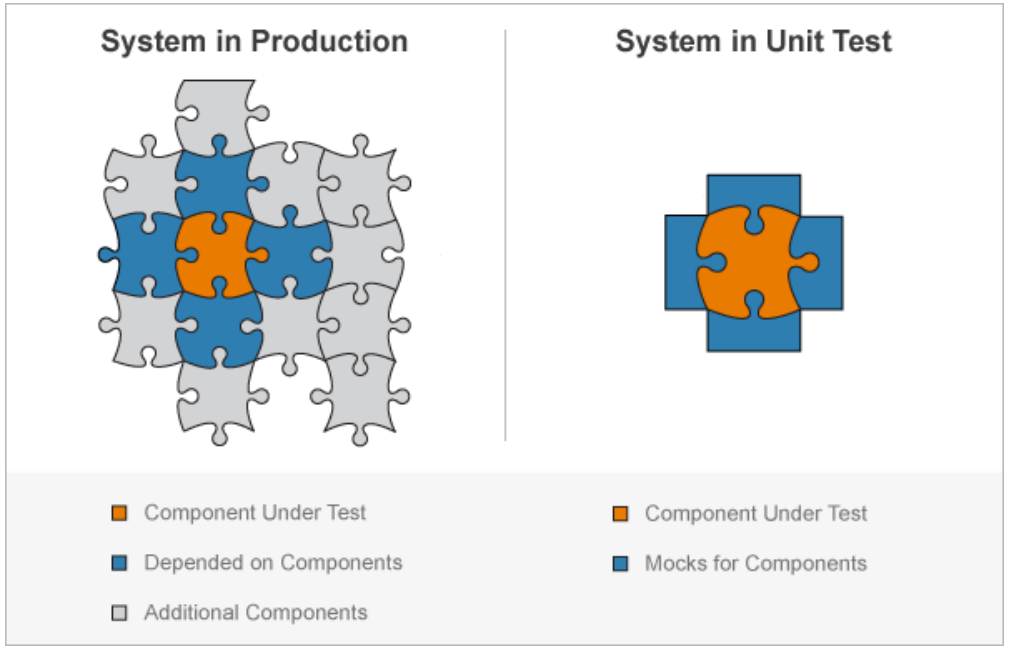
“작업의 규모와 복잡도가 증가할수록 함수도 더 복잡해지고 관리하기 어려워집니다.함수가 너무 커지면 크기가 작은 여러 함수로 나누고 함수 간에 데이터를 전달하는 방법이 있습니다. 하지만 함수 개수가 많아지면 함수에 전달되는 데이터를 설계하고 관리하는 일이 더 어려워지고 오류가 발생하기 쉬워집니다.”



Where Use Object-Oriented Design







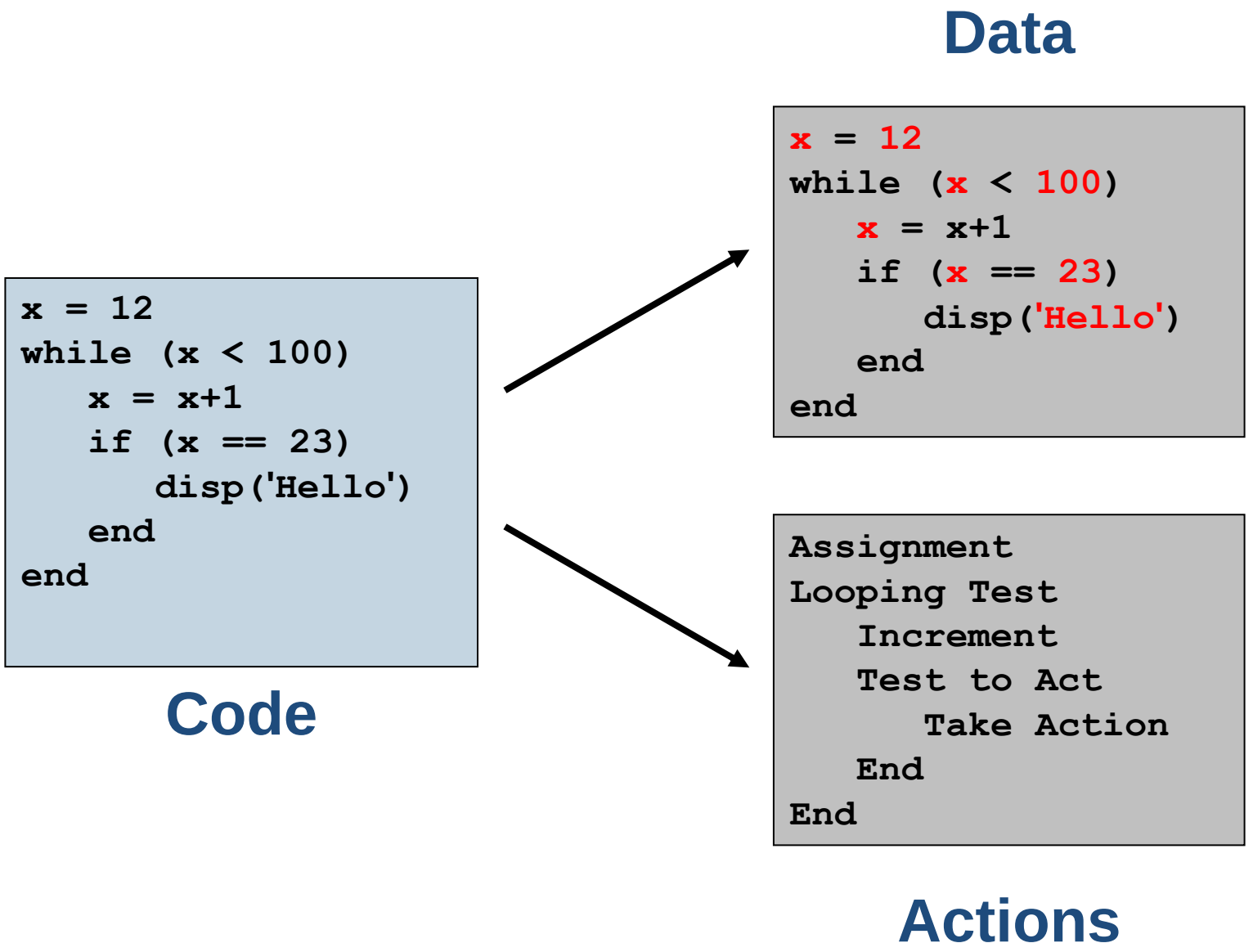
User Stories

- Shell Geologists Develop and Deploy Software for Predicting Subsurface Geologic Features
  - First, they rewrote some of the procedural MATLAB code, applying object-oriented principles to make the code easier to extend and maintain.

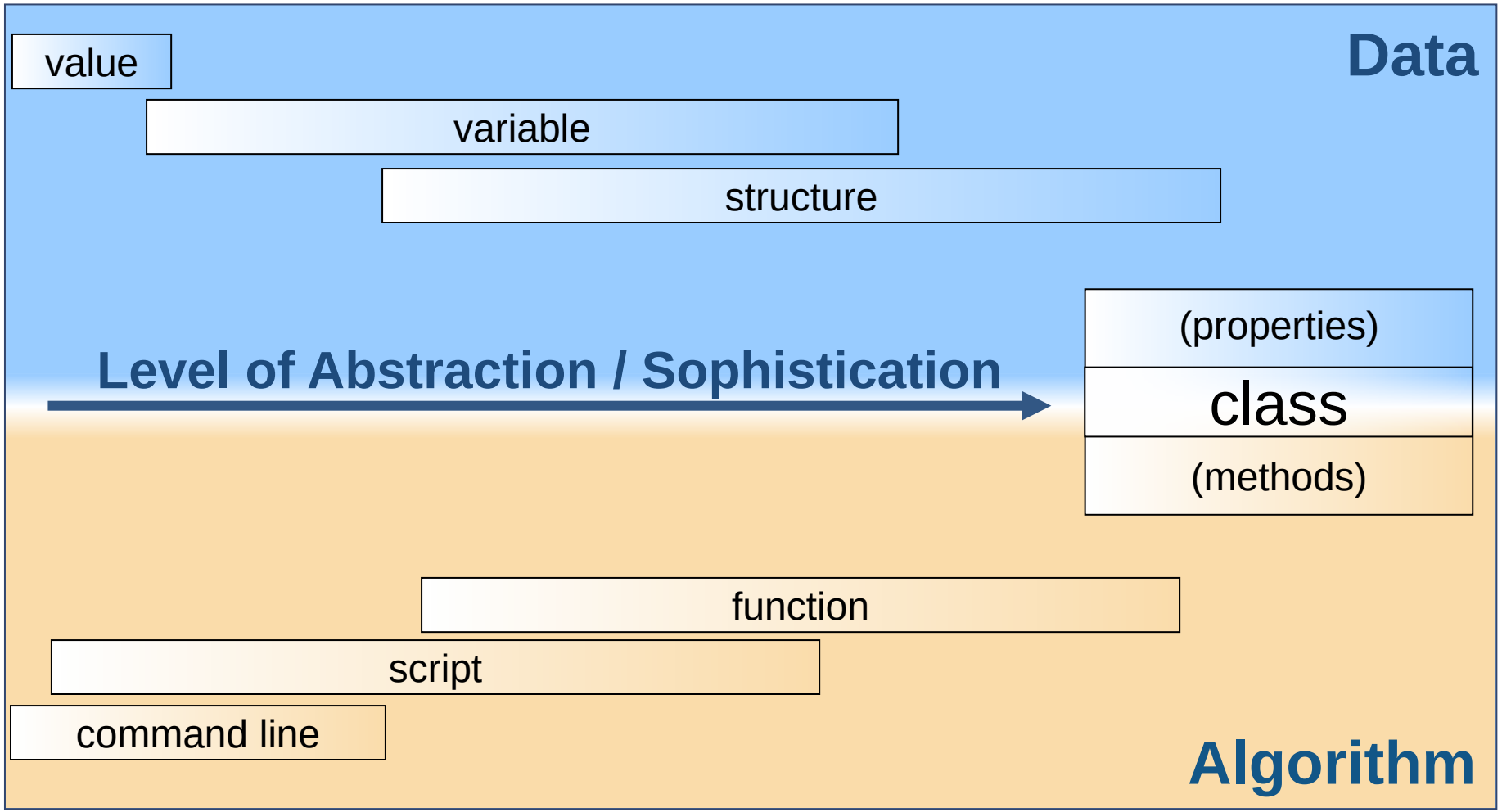
- Trient Develops Financial Analytics Platform to Support Its Investment Team
  - Object-oriented programming in MATLAB enabled us to write less error-prone code, define reusable interfaces, and make rapid updates.

- Bosch Develops a Single Platform for Automotive Test Data Analysis and Visualization
  - The team used the object-oriented programming capabilities of the MATLAB language to simplify ongoing maintenance tasks, including the creation of more than 250 class definition files for the complete application.

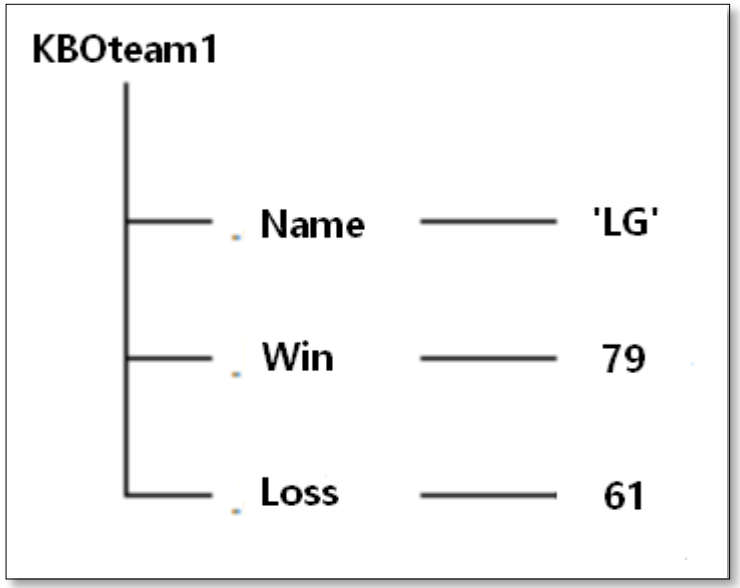
What is a program?



Progression of Programming Techniques



Class

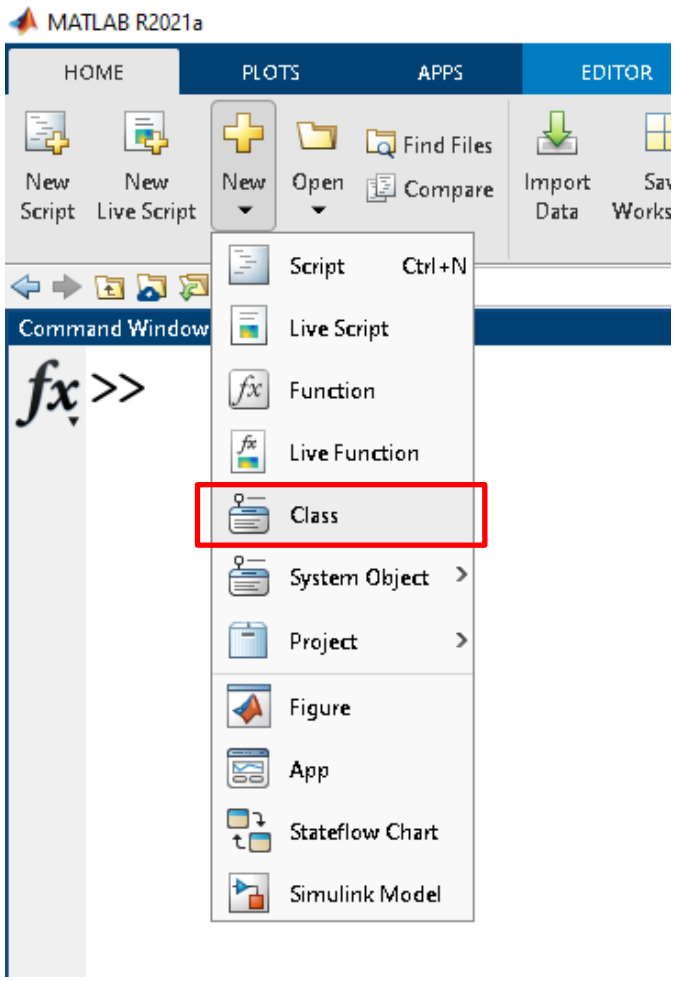


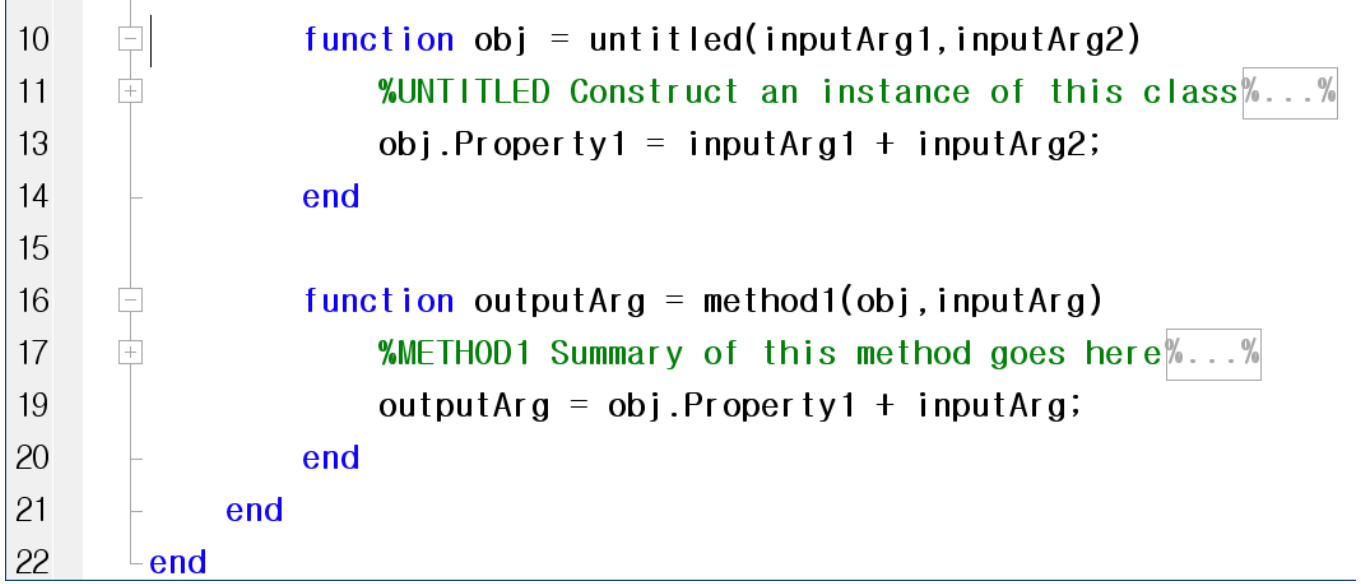

```
function wp = winrate(Win , Loss)
wp = Win/(Win+Loss);
disp([Name '의 승률은 ' num2str(wp) ' 입니다.'])
end
```

```
function wlm = wlmargin(Win , Loss)
wlm = Win - Loss;
disp([Name '의 승패마진은 ' num2str(wlm) ' 입니다.'])
end
```

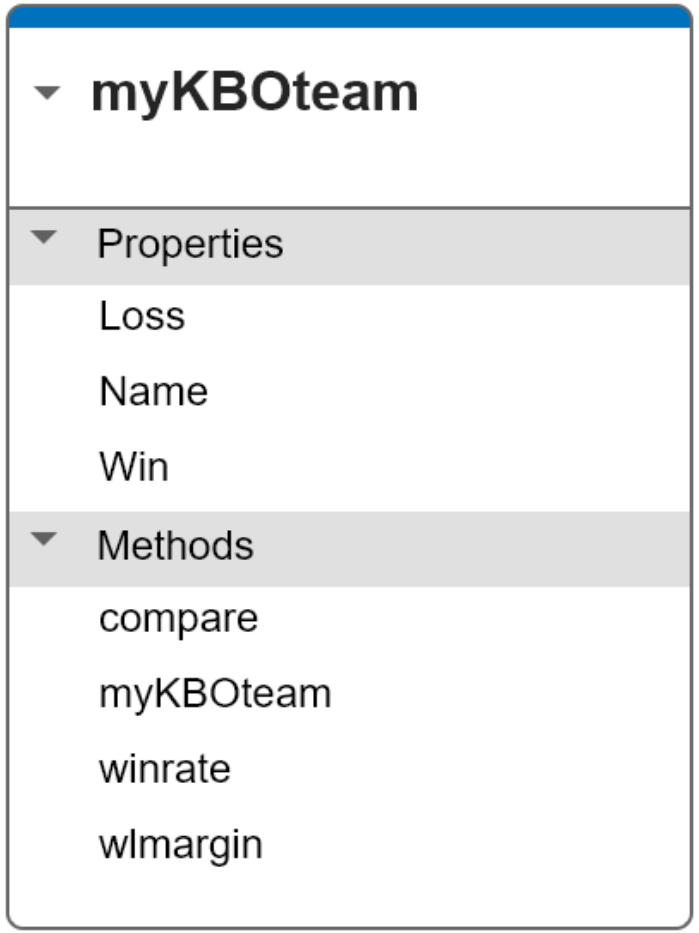
- Abstraction
- Inheritance
- Encapsulation
- Polymorphism

How to make a class definition file





Demo : KBO data Class



- 야구팀의 승패 데이터를 가지고 승률과 승패마진을 계산할 수 있습니다.
- 팀 간의 승률을 비교 할 수 있습니다.

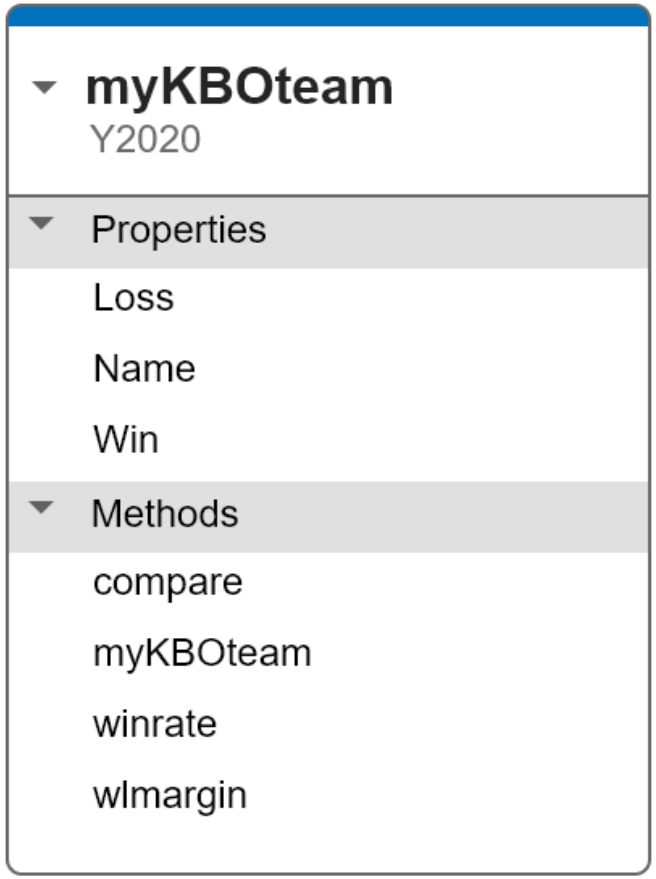
Package 폴더의 활용

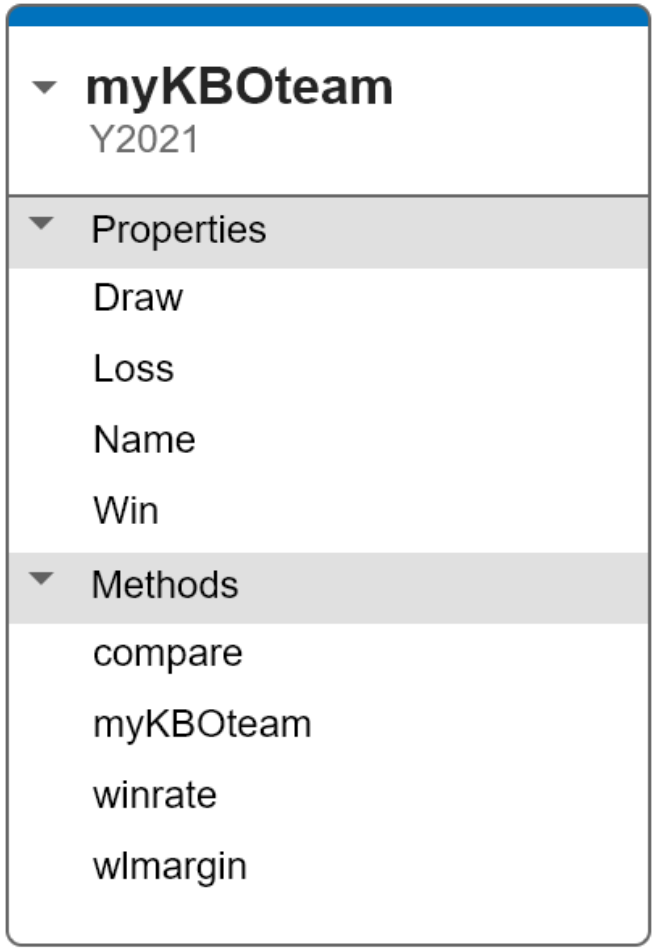
Folders start with '+'

How to use
>> obj = PackageName.ClassName

Or

>> import PackageName.*
>> obj = ClassName

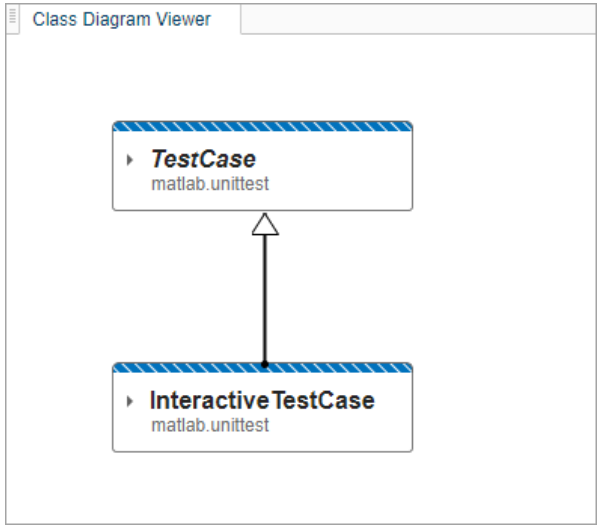




MathWorks Training

- MATLAB Programming Techniques

- Object-Oriented Programming with MATLAB



Q & A