

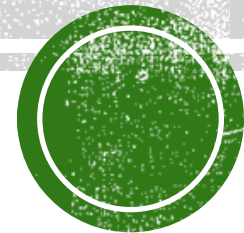
PIPE & FILTERS. LAB 1

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AGENDA

- Architecture Significant Requirements
- ADD session
- Views of the System:
 - A
 - B
 - C

BUSINESS GOALS	ENGINEERING OBJECTIVES
Support multiple platforms (environment).	Provide cross platform solution.
System should be flexible, so that it can be used in different domains (including life-critical systems).	System should be easily reconfigurable for different platforms.
	Ability to accept and process different data types.
	System should be protected from faults due to the critical business impact.
System should satisfy industry standards in terms of performance.	Provide high performance. Satisfy latency constraints.

Engineering Objectives	QA	Sub QA
Provide cross platform solution.	Compatibility	Co-existence Interoperability
System should be easily reconfigurable for different platforms.	Maintainability	Modularity Reusability
Ability to accept and process different data types.	Compatibility Maintainability	Interoperability Modifiability
System should be protected from faults due to the critical business impact.	Reliability	Availability Fault Tolerance
Provide high performance. Satisfy latency constraints.	Performance	Time Behavior

QA	Stimulus	Source of stimulus	Artifact	Environment	Response	Measure of response
Fault tolerance	Filter failures	Fault	Filter	Runtime execution	System replace corrupted filter with new one	It occurs 100 % of time.
Time Behavioral	System reads data from input stream	Filter	Filter	Runtime execution	Filter transform the data, and write the data to the downstream pipe	No more than in X minutes
Modifiability	Change behaviour from A to B	Developer	Design time	Design time	Behaviour changed	No more than in X minutes

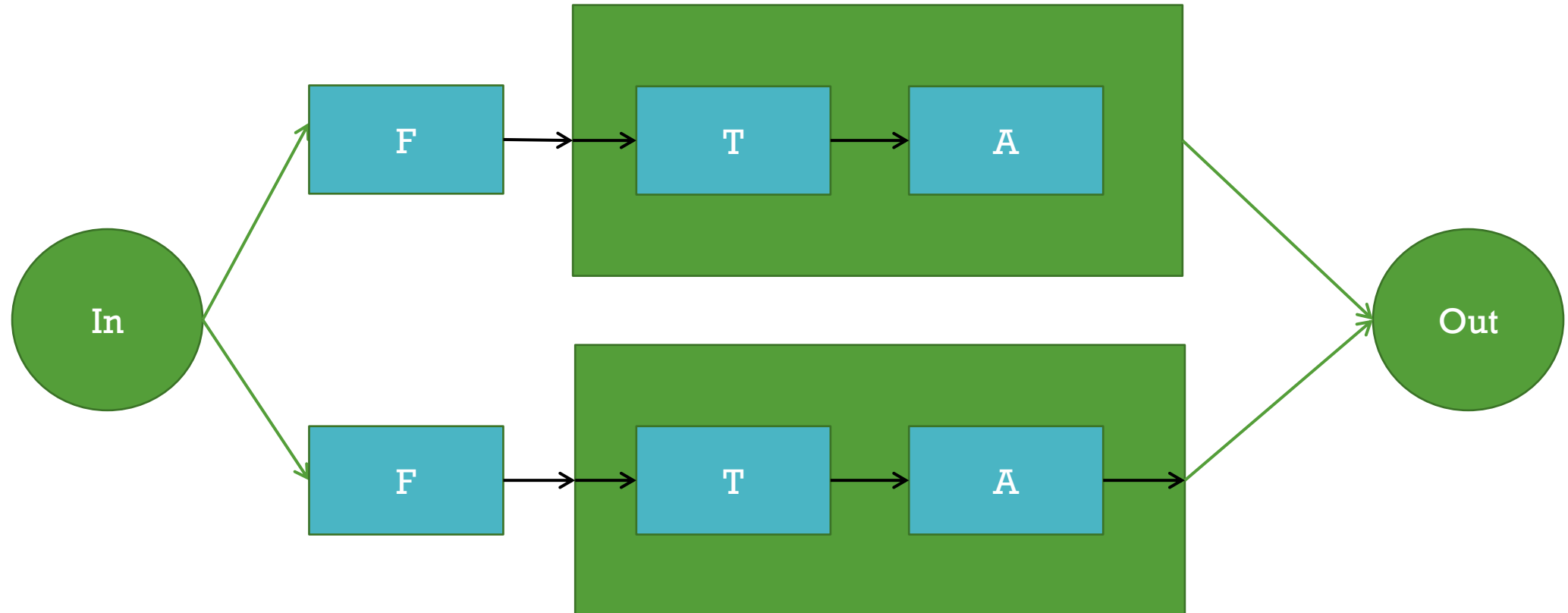
TECHNICAL CONSTRAINTS

- Language – JAVA
- Pipe and Filter architectural pattern
- Existing framework for developing filters
- Data Stream format

A. FUNCTIONAL REQUIREMENTS

- Read the data from the file
- Convert temperature from Fahrenheit to Celsius
- Convert altitude from feet to meters
- Filter out velocity, pressure and attitude columns

A. VIEW

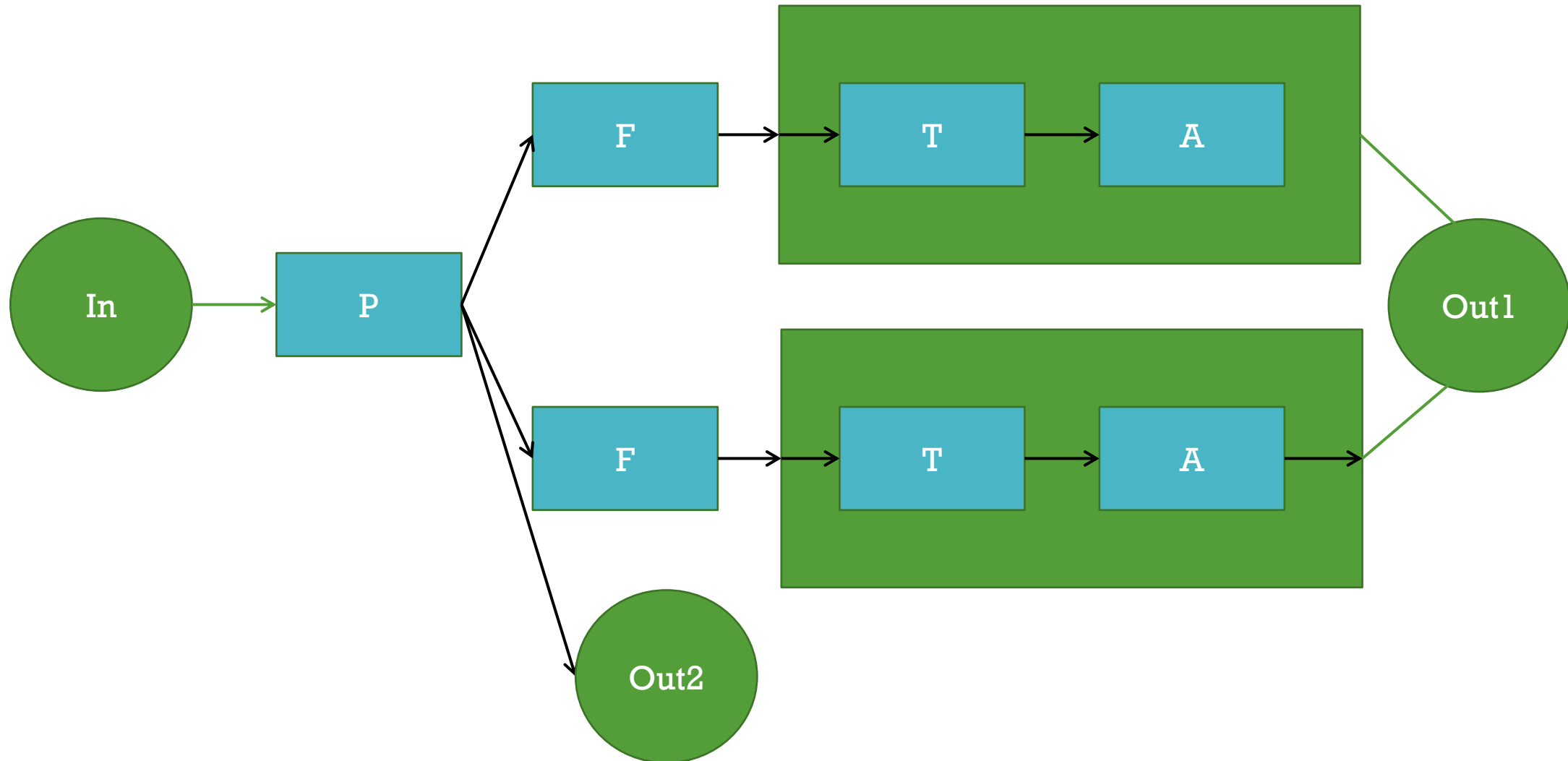


B. FUNCTIONAL REQUIREMENTS

Extend A functionality:

- Do not filter pressure data
- Filter pressure “Wild points”

B. VIEW



C. FUNCTIONAL REQUIREMENTS

- Merge two data stream
- Store data in sorting order
- Filter out altitude less than 10 Kfeet
- Filter pressure “Wild points”

C. VIEW

