Developing Multilayered MATLAB Applications

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Layers

Aim

Learn some MATLAB techniques for addressing common scenarios:

"My application needs to read data from different sources."

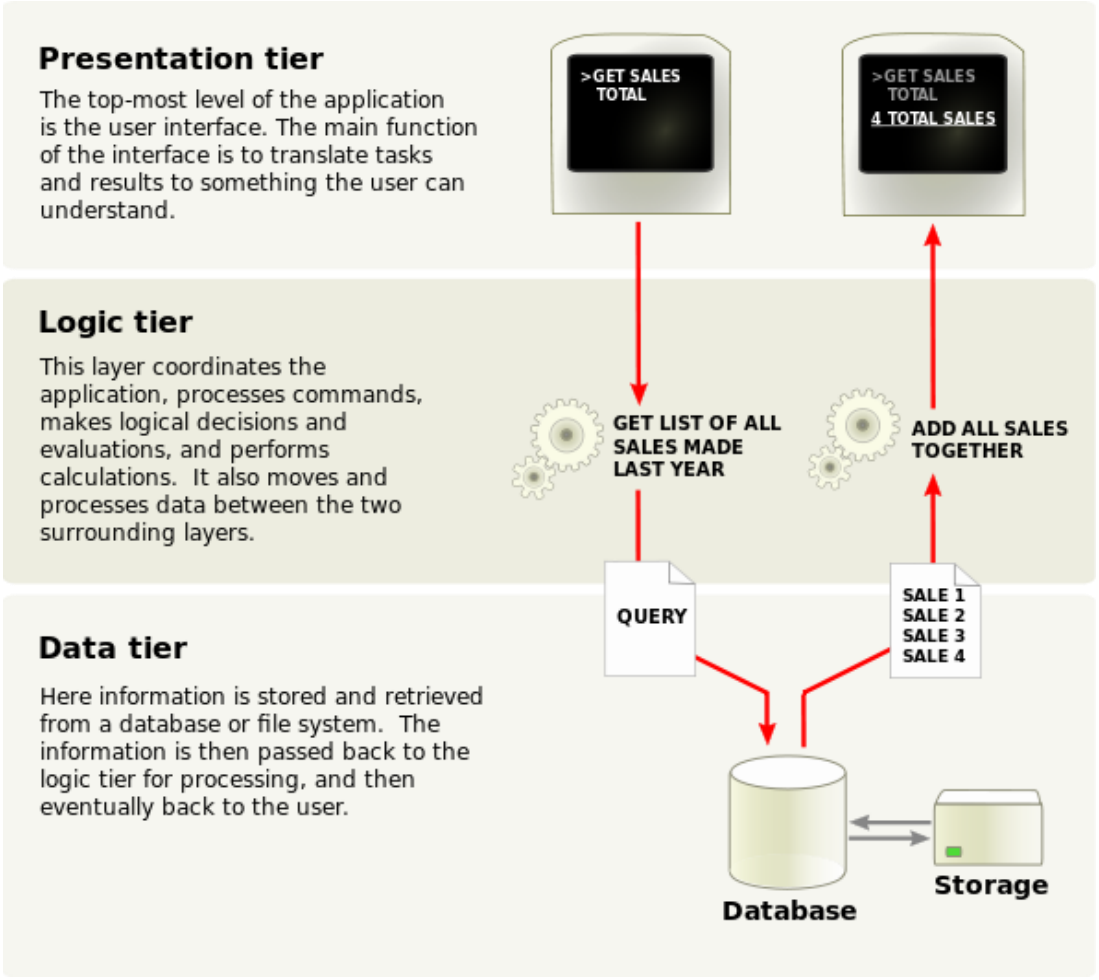
"I need a simulated data feed for development and testing."

"I want to reuse my plotting code across visualization and reporting tasks."

Example: Data viewer requirements

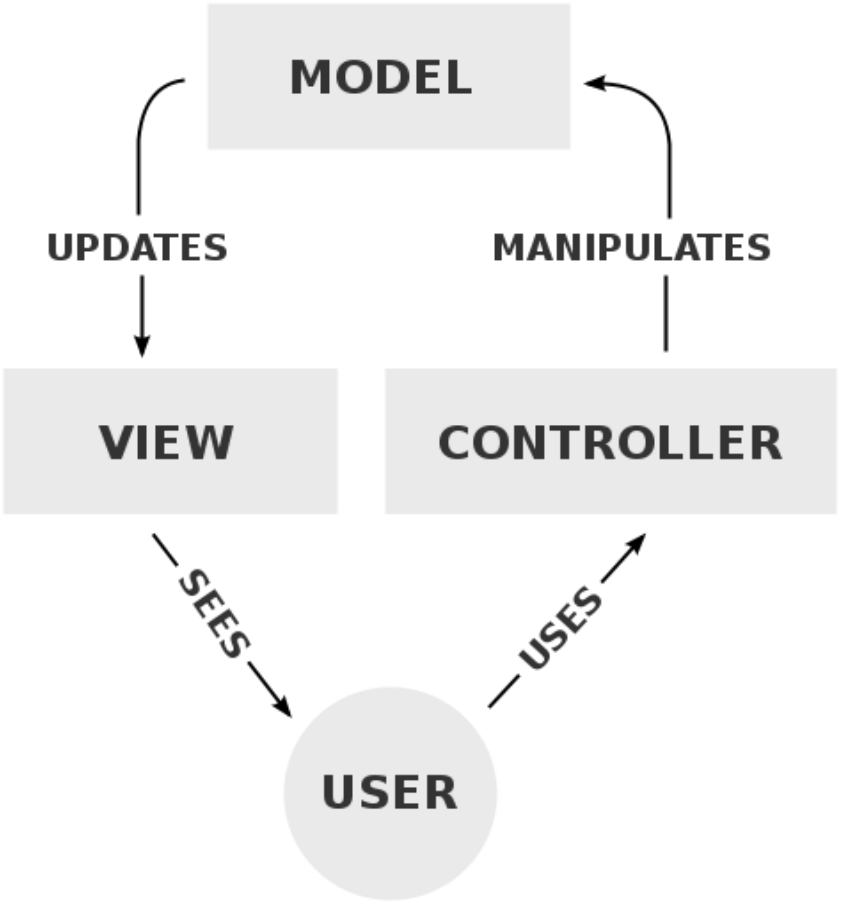
- Display data from MAT-files, CSV-files, a database, or a random data generator
- User can select the date to view
- User can switch data source interactively –or– via a configuration file

Separation of presentation and data from logic



Source: Wikipedia

Model – view – controller pattern



Source: Wikipedia

Data viewer recap

- Defined separate layers for data access and presentation
- Defined an interface for data sources
- Implemented several concrete data sources
- Implemented several concrete views
  - Uncoupled model from views using events
- Populated the model data source from the application class

Example: Data feed requirements

- Notify listeners of new data – symbol, time, price
- User can start and stop
- User can query whether running

Data feed recap

- Defined an interface for data feeds
  - Used events including custom event data
- Simulated data feed holds data
  - Or a data source
- Used a timer to move through the data

Example: Custom chart requirements

- Display both base data and a moving average
- User can specify base data
- User can specify window length for the moving average
- User can control position of the chart in the graphics hierarchy

Custom chart recap

- Defined a class for the custom chart
- Presented data as properties
- Presented graphics attributes as properties
- Used dependent properties extensively
- Synchronized life cycle of the chart object and its graphics

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Thank you for your attention.

Questions?