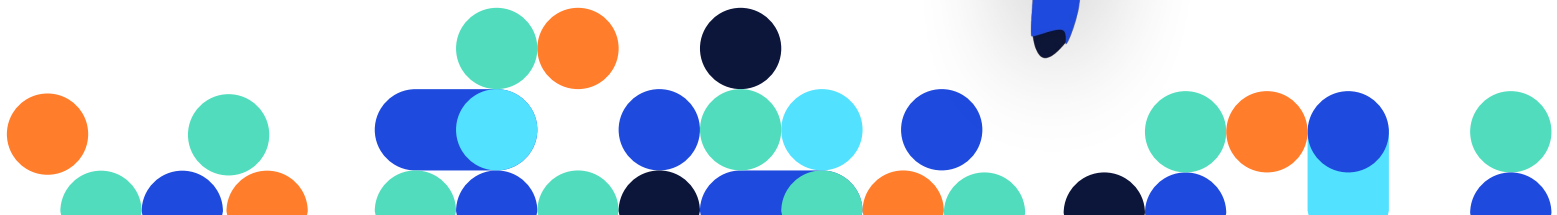
DataStax Developer Day

DATASTAX

DSE Graph



DSE Graph

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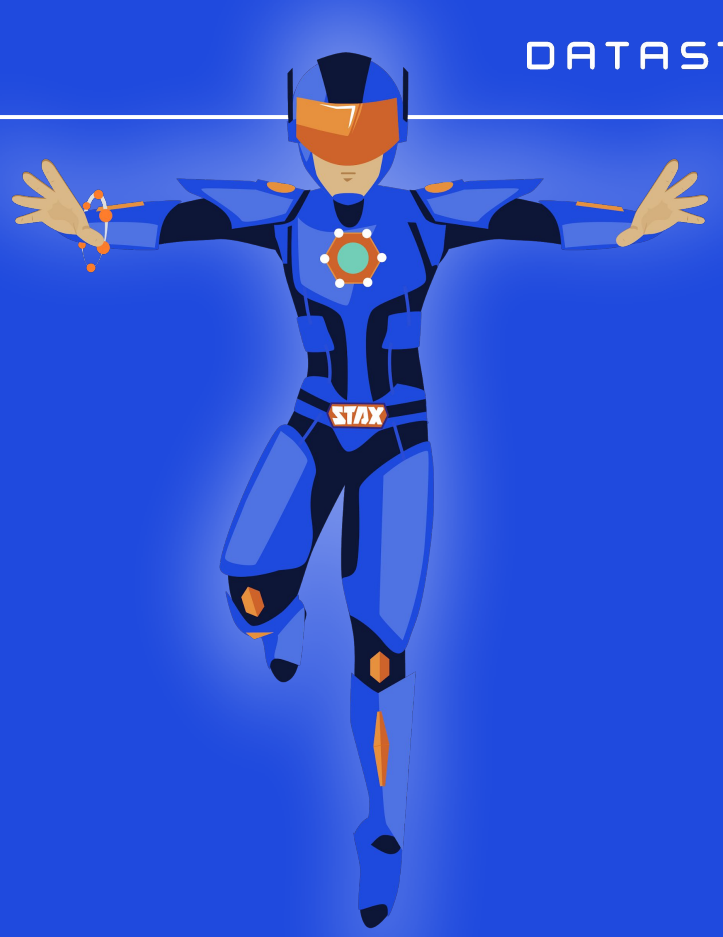
Introduction to Graph



Read-Eval-Print-Loop

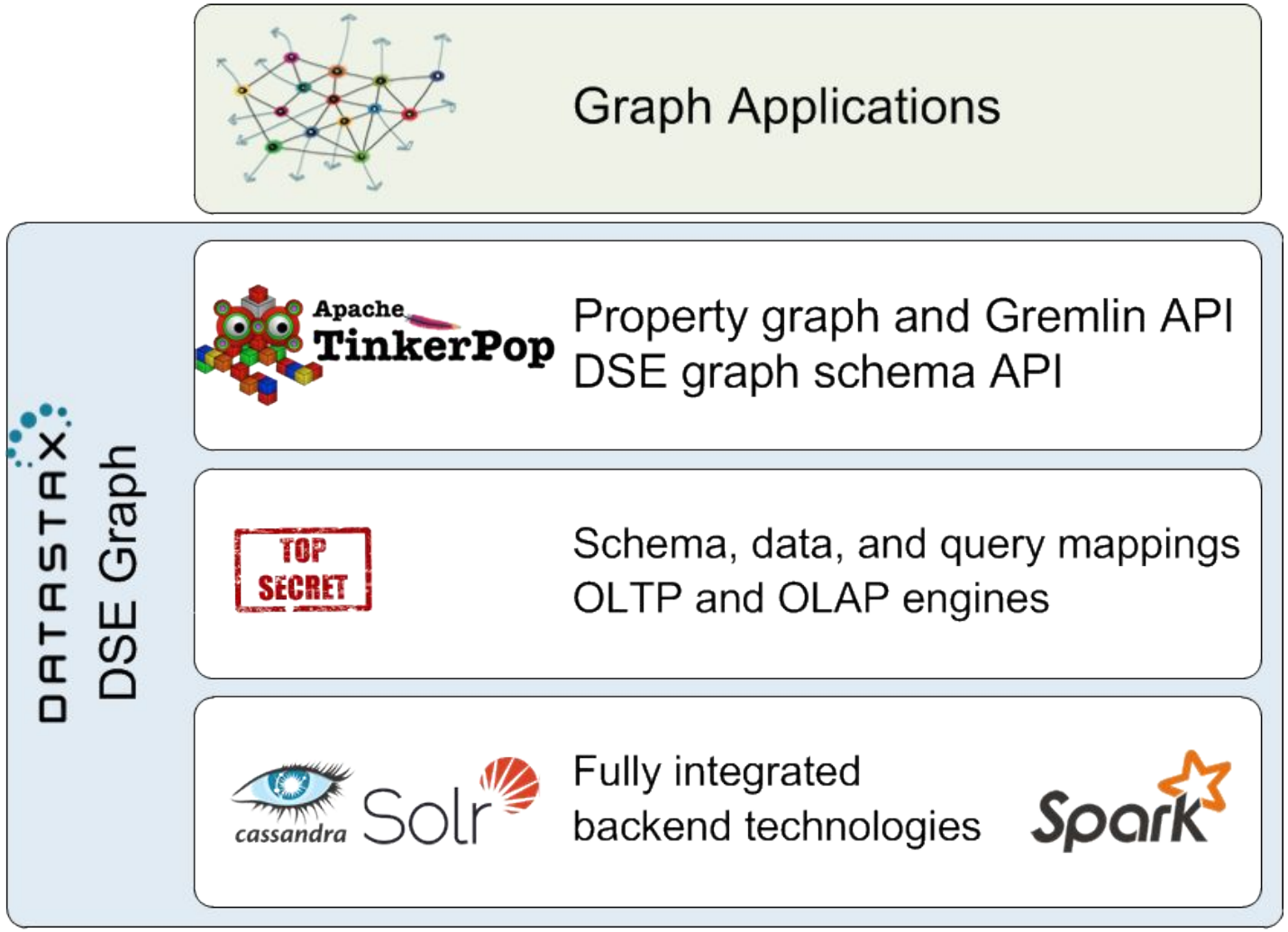
DSE Graph - Agenda

- DSE Graph and its applications
- The KillrVideo graph
- Retrieving graph elements
- Walking paths in a graph
- Traversing neighborhoods and subgraphs
- Matching graph patterns
- Graph training on DataStax Academy

DSE Graph - Features

- Real-time graph database management system
- Fully distributed, scalable, always-on
- Property graph data model and Gremlin traversal language
- Rich graph analytics capabilities
- Comprehensive enterprise-level data security

DSE Graph - Architecture



DSE Graph – Identifying Graph Problems

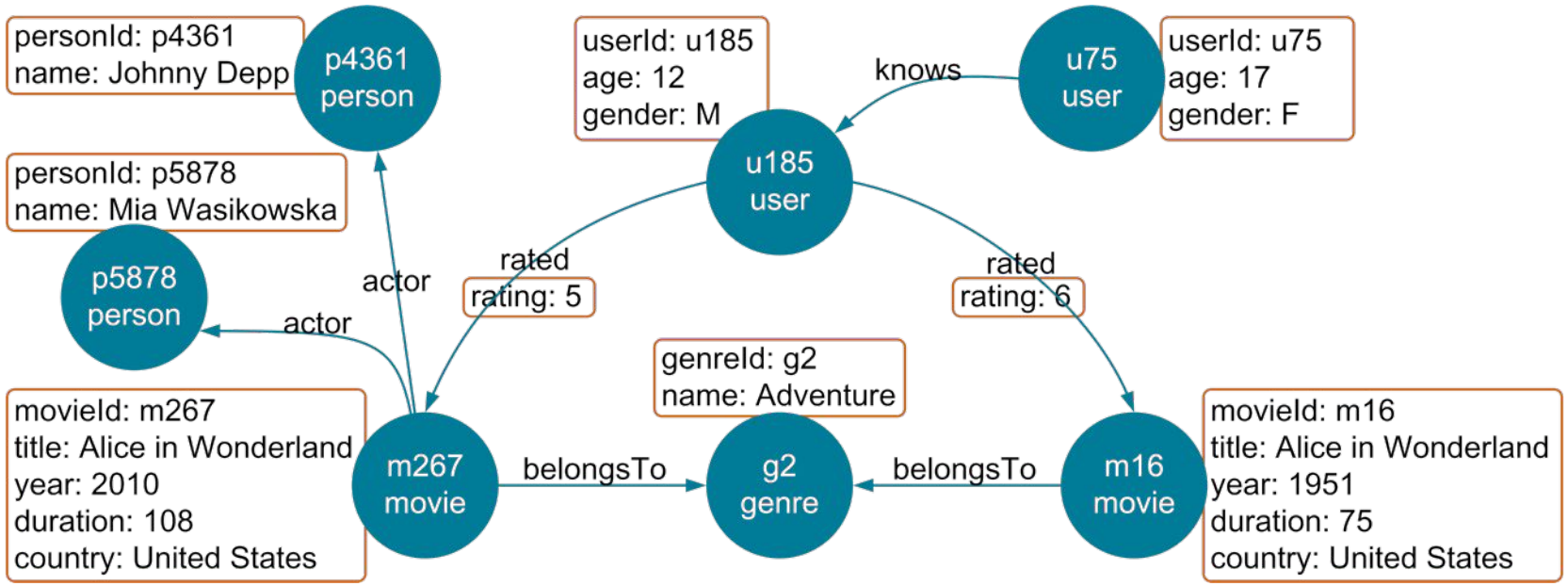
- Problem domain is naturally represented as a network, web, or graph
- Problem focus is on connections, links, relationships, and dependencies
- Solution has real-time requirements
- Solution must be efficient, scalable, and fault-tolerant

Common traversal patterns and their sample applications

- Looking for paths
  - social networks - connection between two people
  - road networks - the shortest route between two locations
- Exploring neighborhoods
  - customer 360-degree view
  - social networks - friend of a friend
  - sensor networks - area affected by a wildfire
- Matching complex graph patterns
  - recommendation engines - similar items
  - entity resolution - similar items
  - fraud detection - abnormal patterns

The KillrVideo graph

- Property graph – vertex-labeled, edge-labeled, directed, binary, attributed multi-graph:
  - Vertices
  - Edges
  - Properties



Time for an exercise!

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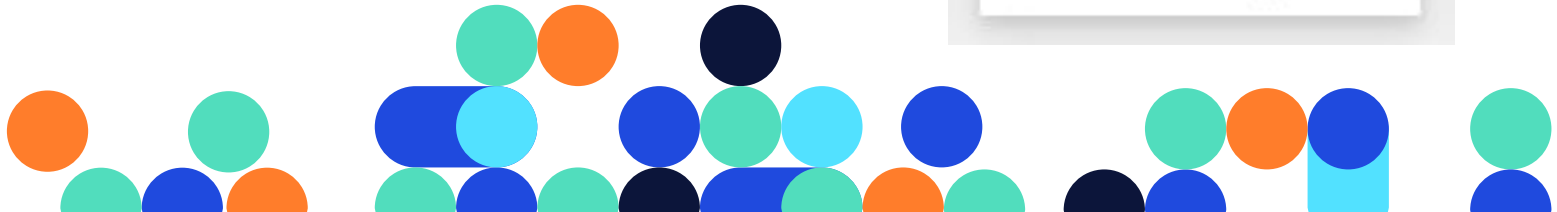
“DSE Graph: Introduction” Notebook



DSE Graph

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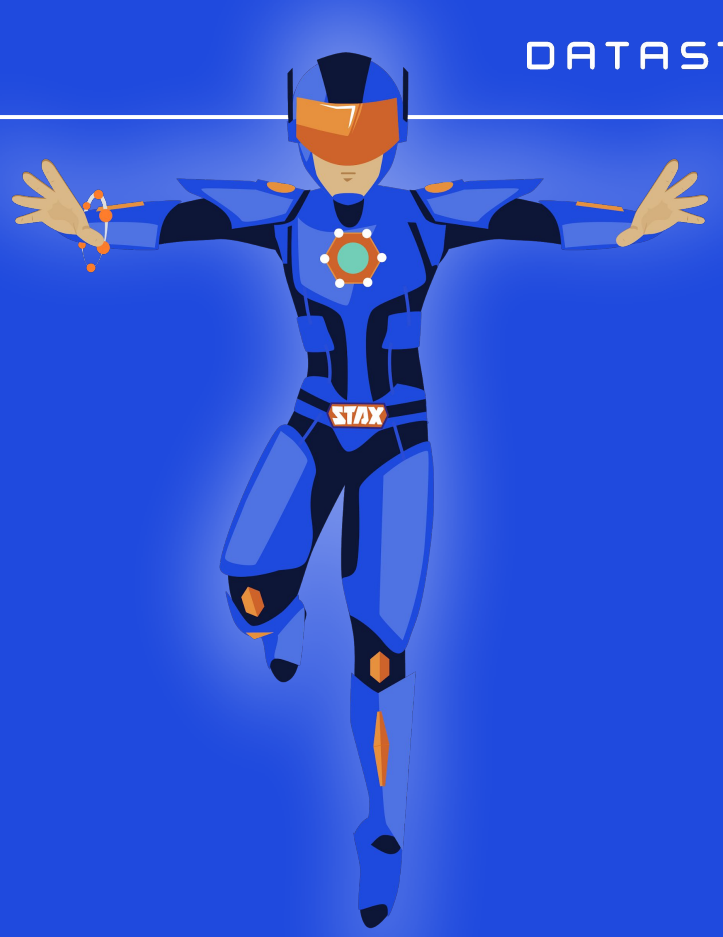
Retrieving Graph Elements



Read-Eval-Print-Loop

And another Exercise!

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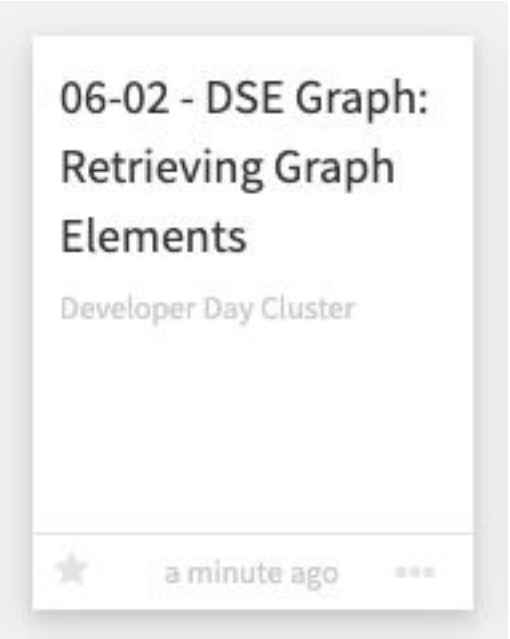
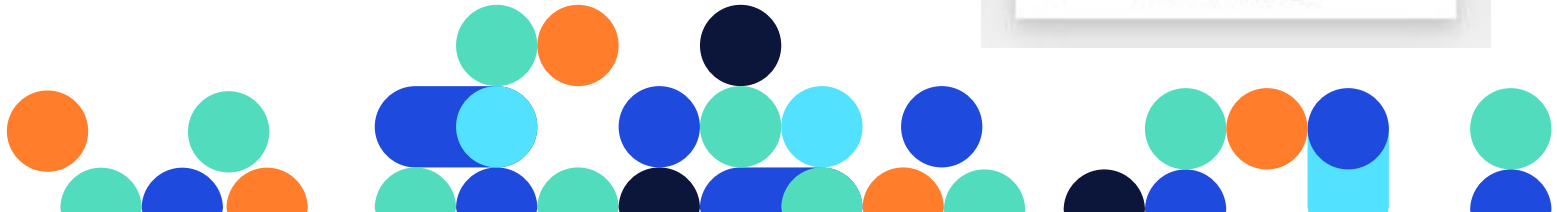
“DSE Graph: Retrieving Graph Elements” Notebook





DSE Graph

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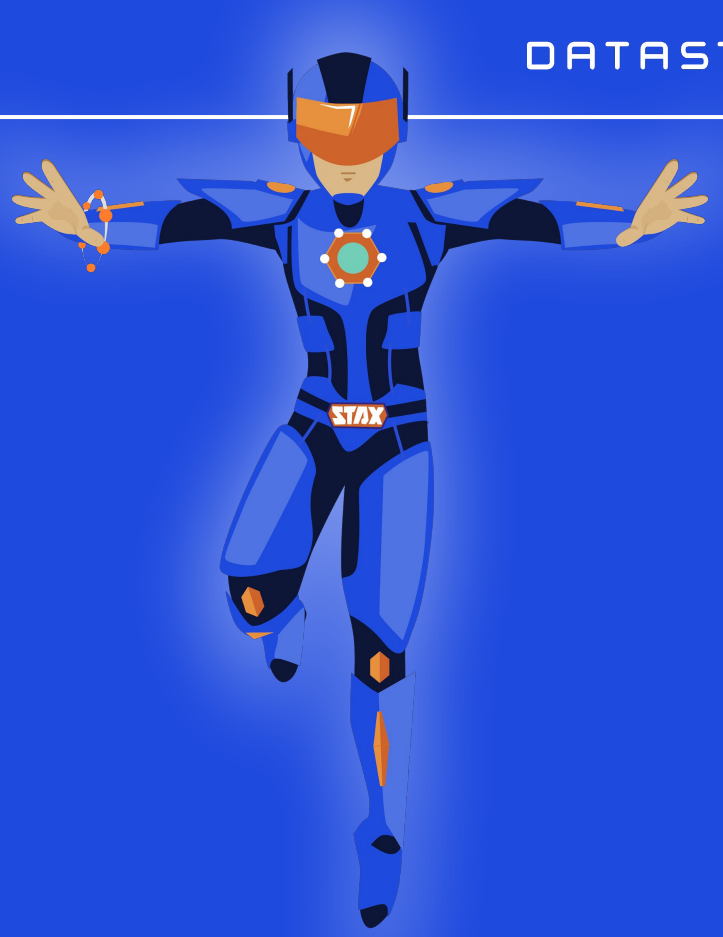
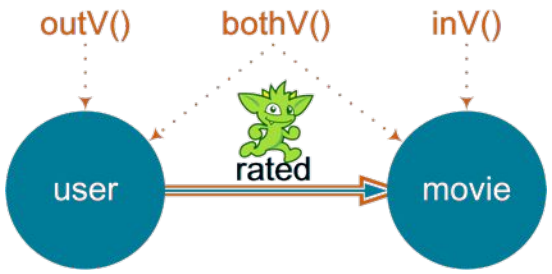
Walking Paths in a Graph

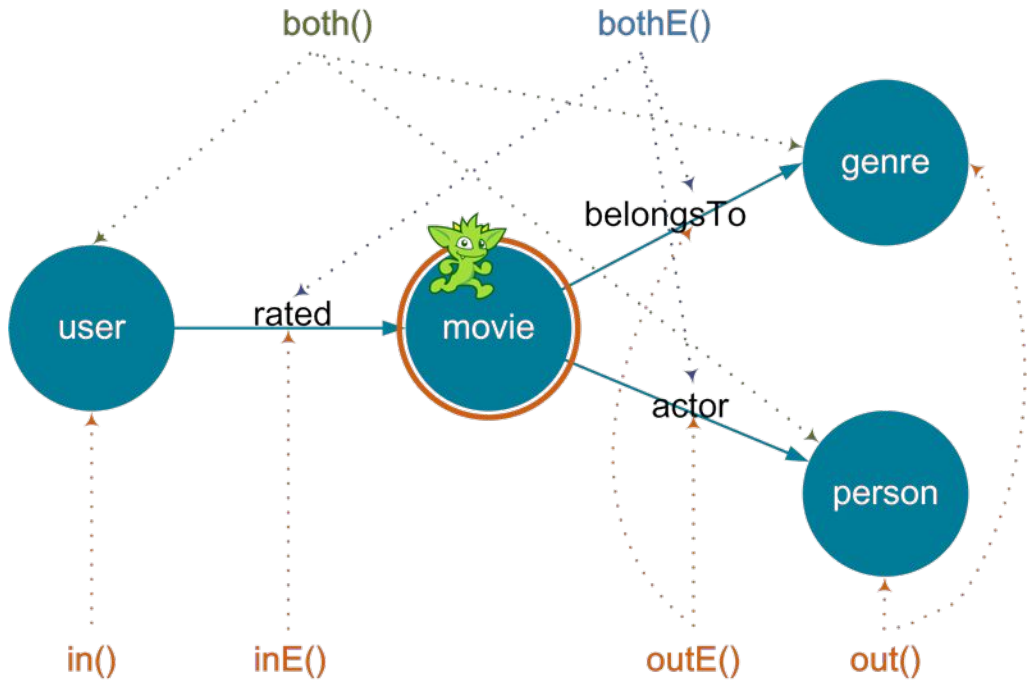


Read-Eval-Print-Loop

Walking Paths in a Graph

- in(), out(), both()
- inE(), outE(), bothE()
- inV(), outV(), bothV(), otherV()
- select(), as(), by()
- repeat(), until(), times(), emit(), timeLimit()
- path(), simplePath()





Time for an exercise!

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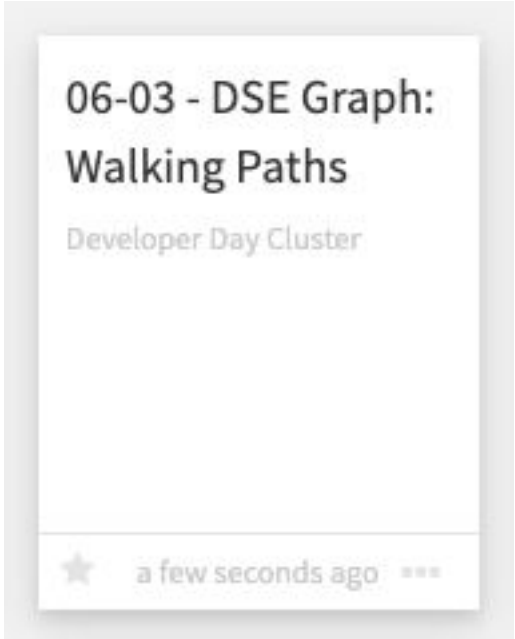
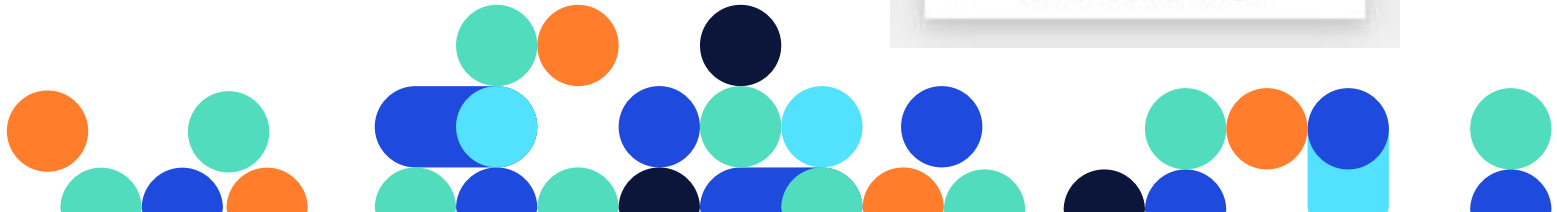
“DSE Graph: Walking Paths in a Graph” Notebook





DSE Graph

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Traversing Neighborhoods and Subgraphs

Time for an exercise!

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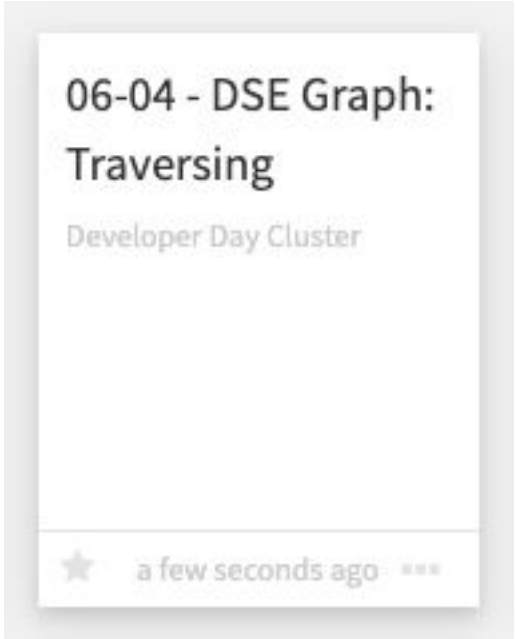
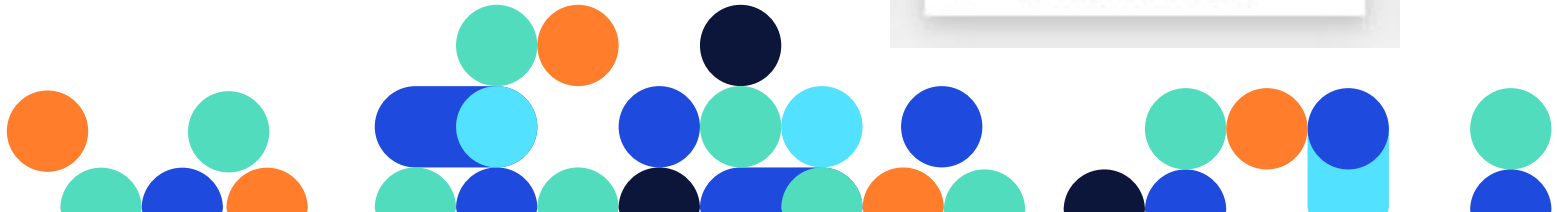
“DSE Graph: Traversing” Notebook





DSE Graph

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Matching Graph Patterns

Comparing Imperative and Declarative Traversals

Time for an exercise!

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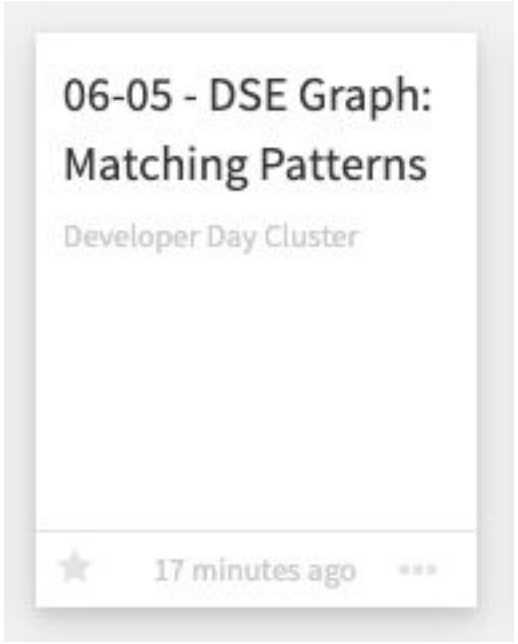
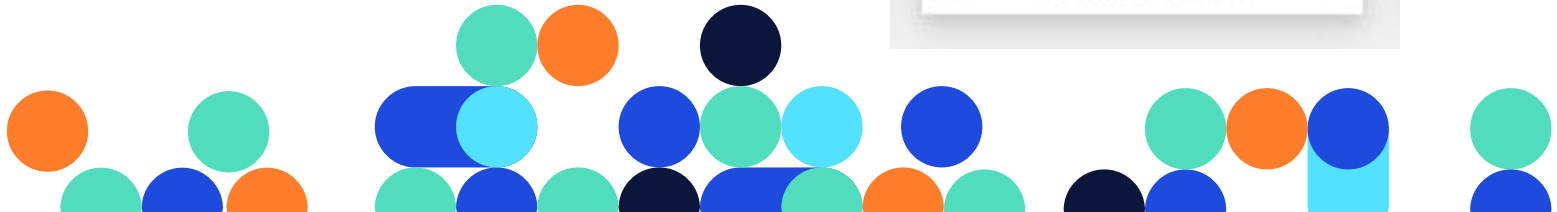
“DSE Graph: Matching Patterns” Notebook





Next Steps

- Continue learning on DataStax Academy:
  - DS330: DataStax Enterprise 6 Graph
  - DS332: DataStax Enterprise 6 Graph Analytics

https://academy.datastax.com

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Thank You