# HPCC SYSTEMS

## KSU HACKATHON

# Mining the Value of Property Assessment Data

Conducting property analysis is a valuable way to understand the value of the properties in the marketplace. It is also important when making any financial decisions on whether to buy, hold, or sell.

In this hackathon, you will work with the real world property assessment data to conduct property analysis, leveraging the distributed computing environment of HPCC Systems and ECL Cloud IDE from LexisNexis Risk Solutions. A data dictionary will also be provided for a better understanding of the property assessment data.

| recording_date | registry_number | sale_date | sale_price | separate_utilities | sewer | site_type | state_code | street_code |
|---|---|---|---|---|---|---|---|---|
| 2018-10-09T00:00:00Z | 009N130296 | 2018-10-03T00:00:00Z | 438990 | C | Y | A | 1001 | 61660 |
| 2018-12-11T00:00:00Z | 009N130298 | 2018-11-27T00:00:00Z | 350000 | C | Y | A | 1001 | 61660 |
| 2018-11-28T00:00:00Z | 009N130299 | 2018-10-17T00:00:00Z | 448000 | C | Y | A | 1001 | 61660 |

Partial Sample Dataset

# Project Evaluation:

- **You will be rated on how you break down the problem, how you understand the data, how you shape the data for analysis and then the steps you take to analyze it.**

- HPCC Systems Mentor team will base on below criterial to measure the project performance:

1. Please record each step clearly in the source code in ECL Cloud IDE
2. Report what's discovered in each step in the final presentation.
3. Play each step as a demo in ECL Cloud IDE in the final presentation.

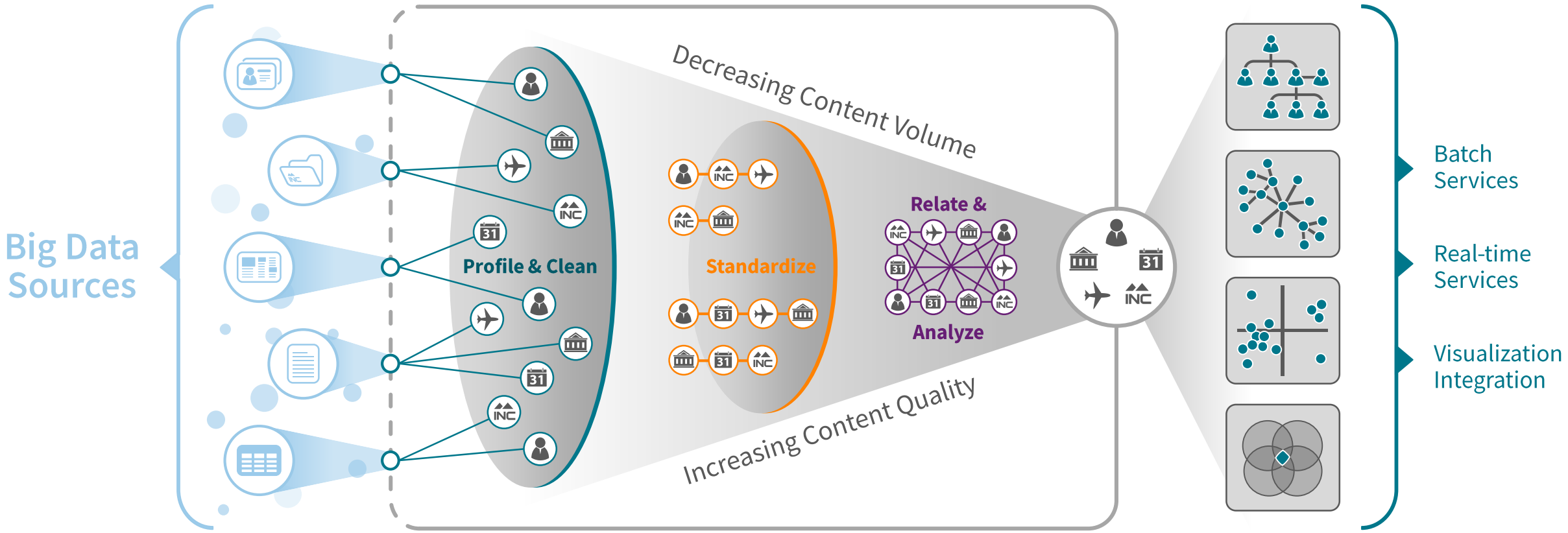
For example, if you execute a data profiling, please record this step clearly in the source code in ECL Cloud IDE and report what's discovered in the final presentation.

Process is more important than the result

# What you will need in this hackathon?

# HPCC Systems (Small to Big Data) ETL

Integrate > Profile > Clean > Standardize > Aggregate > Machine Learning > Deliver




Unstructured and Structured Content

HPCC Systems Data Lake

Analysis Applications

# Machine Learning on HPCC Systems Platform

Core Bundles

ML_Core

PBblas

Algorithm Bundles

LinearRegression

LogisticRegression

Text Vectors

GLM

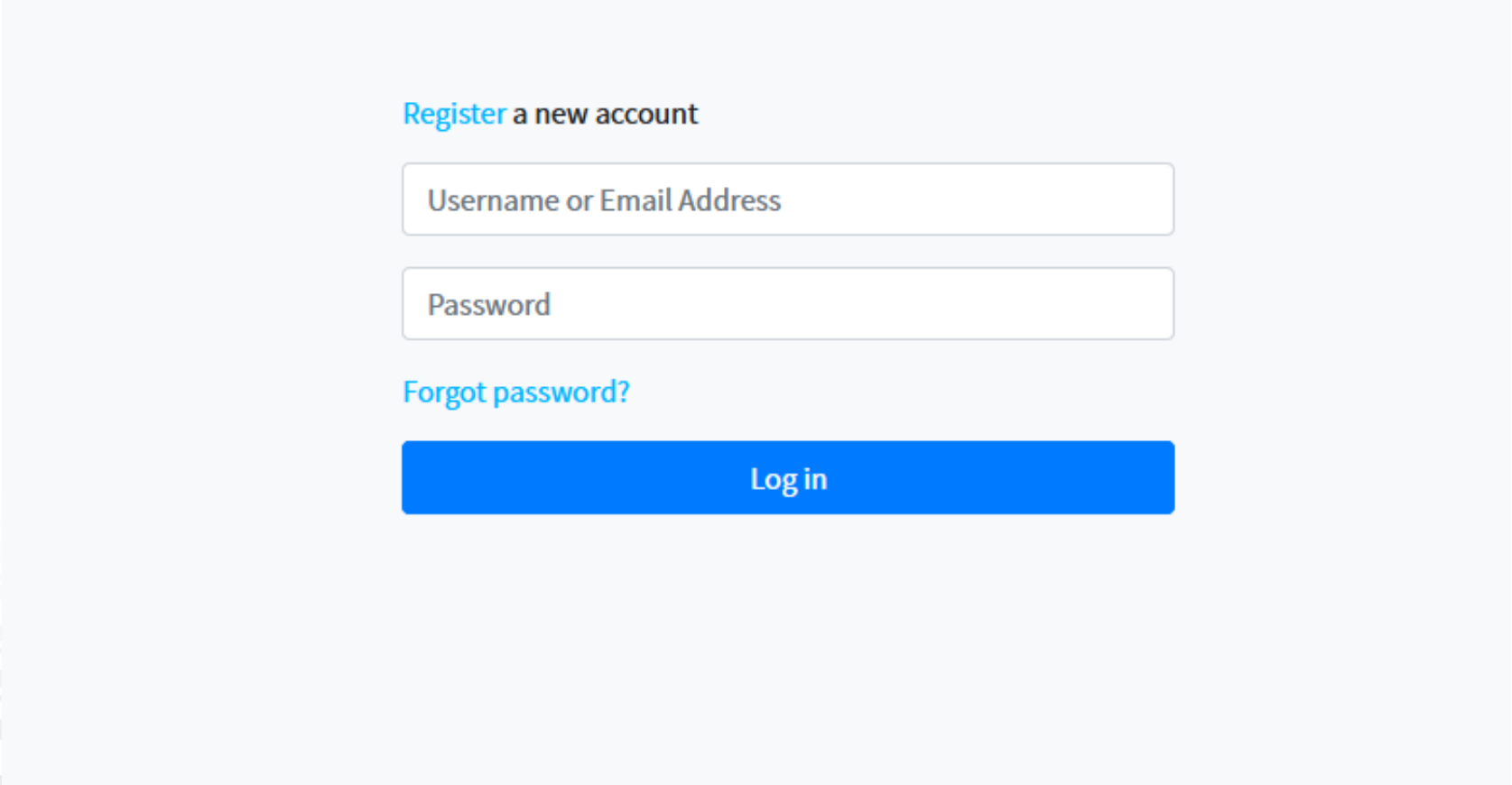
K-Means

SVM

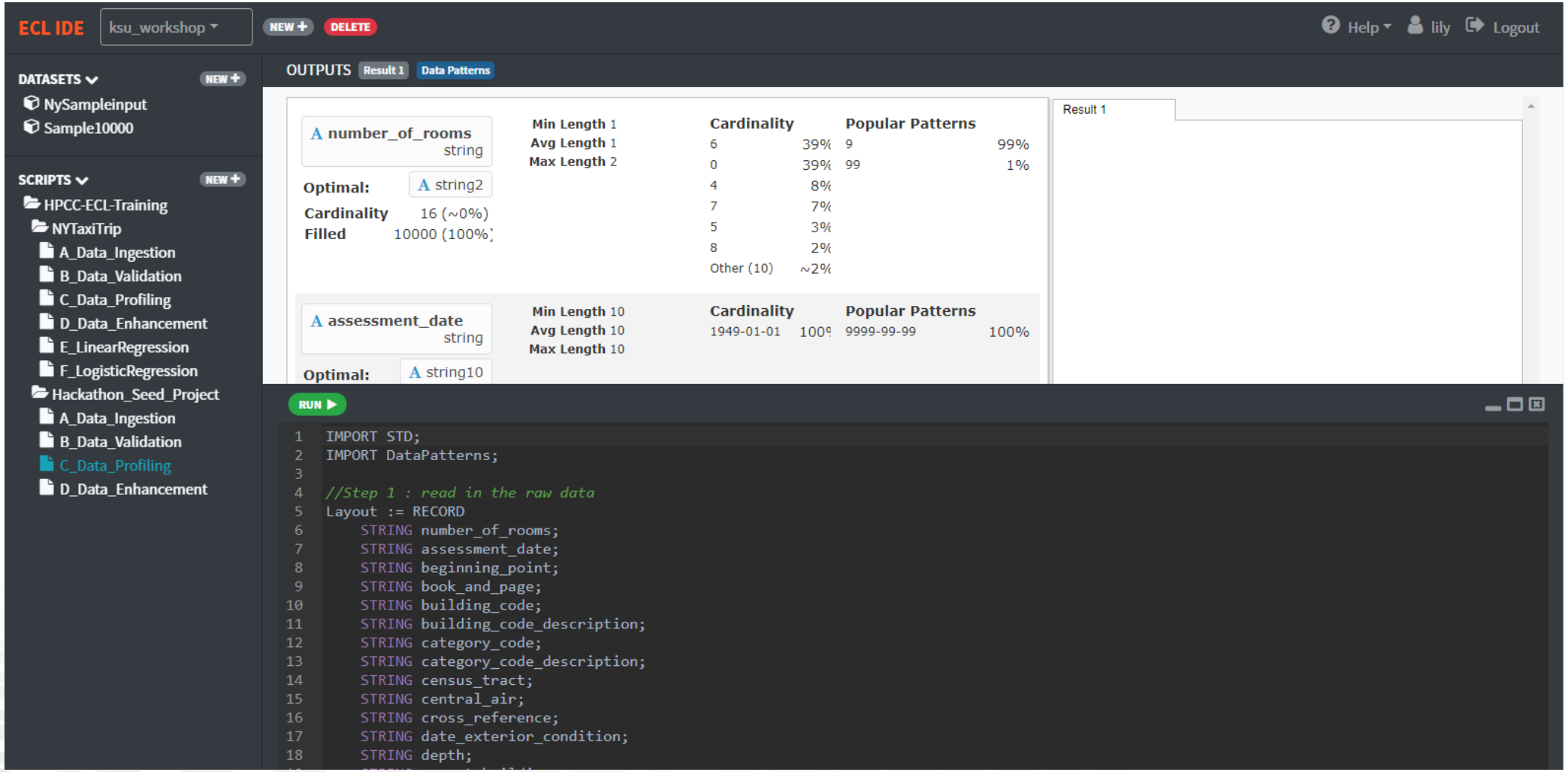
LearningTrees

# ECL Cloud IDE

https://ide.hpccsystems.com/



# ECL Cloud IDE




ECL Cloud IDE WorkSpace

# HPCC Systems KSU Hackathon 2019

HPCC SYSTEMS®

https://hpccsystems.com/hpccsummit2019

IDEA

CONNECT

SOLVE

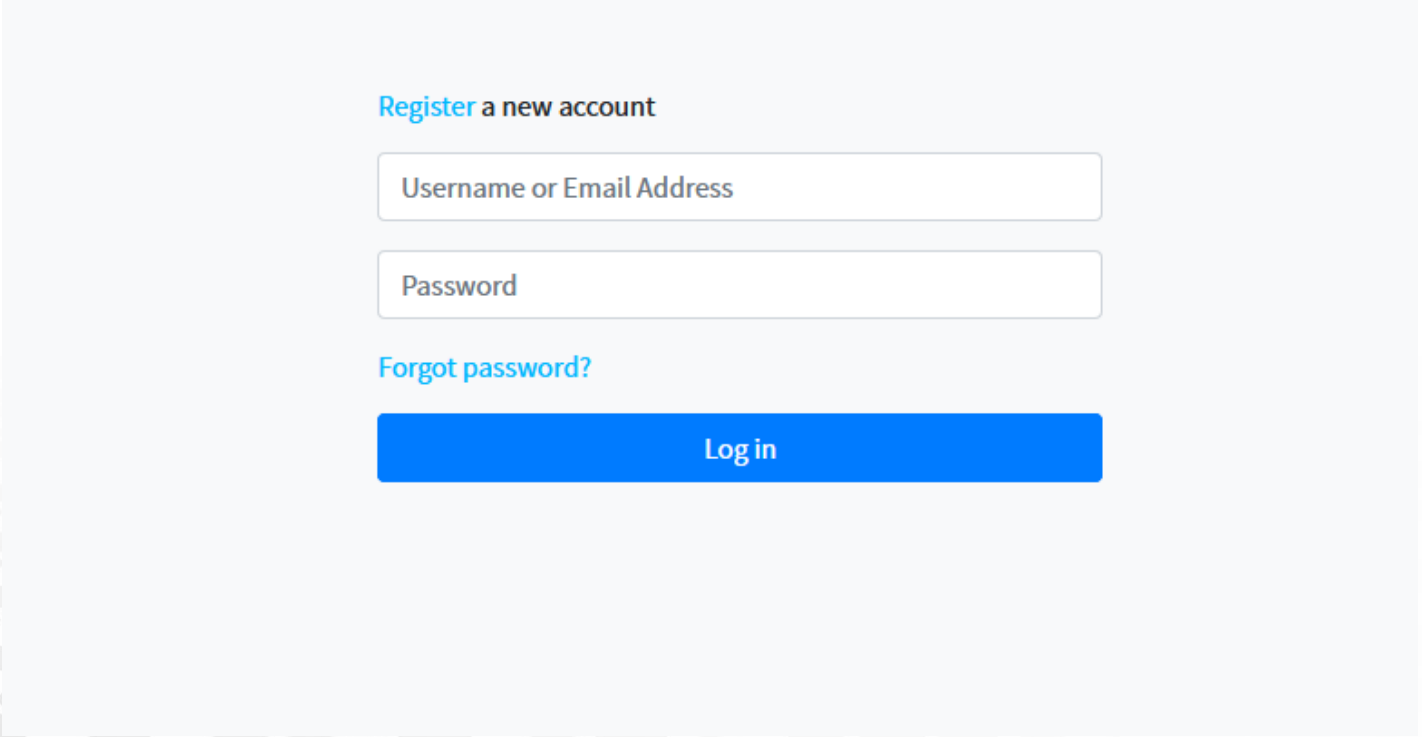
PRESENT

ECL IDE

# Hackathon Tips

1. Register to become a member of ECL Cloud IDE on KSU Campus

https://ide.hpccsystems.com/auth/login



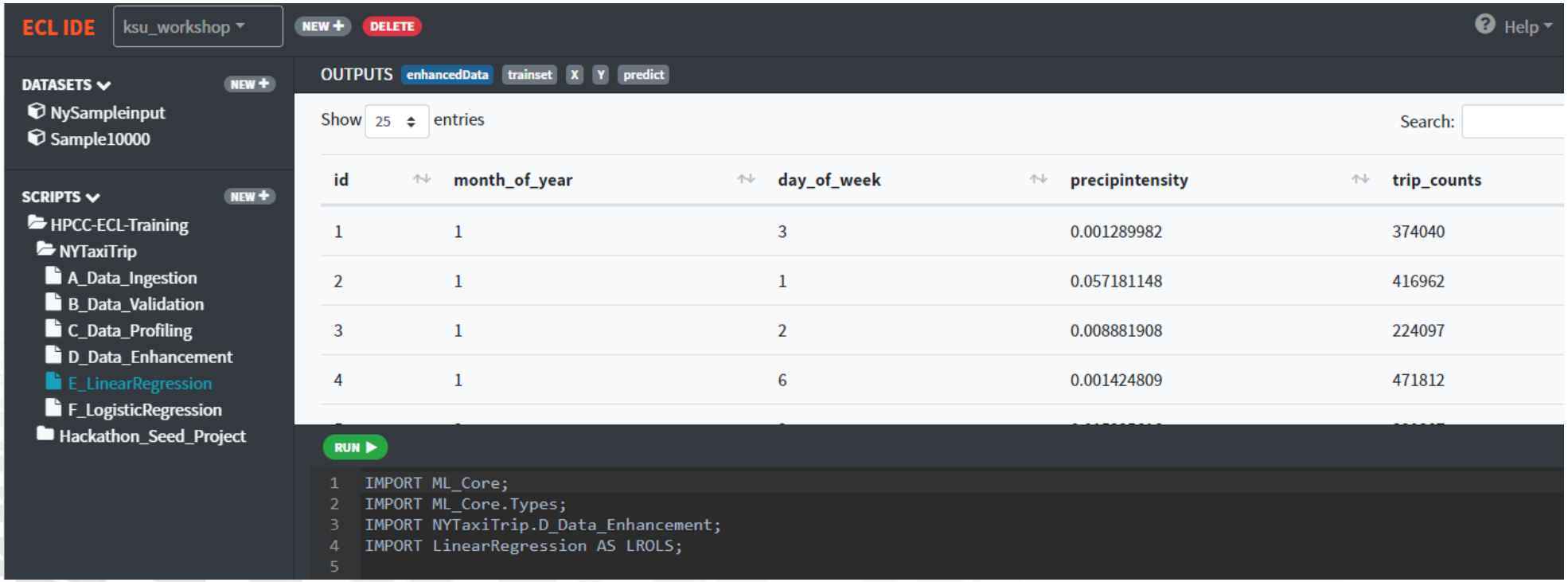
# Hackathon Tips – cont.

2. Copy the KSU_Hackathon WorkSpace into your ECL Cloud IDE by open below link in the browser:

https://ide.hpccsystems.com:/workspaces/share/0669c8d7-ac13-45e2-806c-81201f88a02c

# Hackathon Tips – cont.

3. Try NYTaxiTrip examples in HPCC-ECL-Training folder to rewind the workshop



# Hackathon Tips – cont.

- NOTE:

The name convention to refer the file uploaded to your workspace is

'~USERNMAE::WORKSPACENAME::RAWFILENAME‘

Example:

If your username is Mike, you created a workspace 'HPCCSystems‘ and uploaded the file 'test.csv‘ to the workspace.

To use the dataset in ECL Cloud IDE,  the directory to refer the file should be '~Mike::HPCCSystems::test.csv‘.

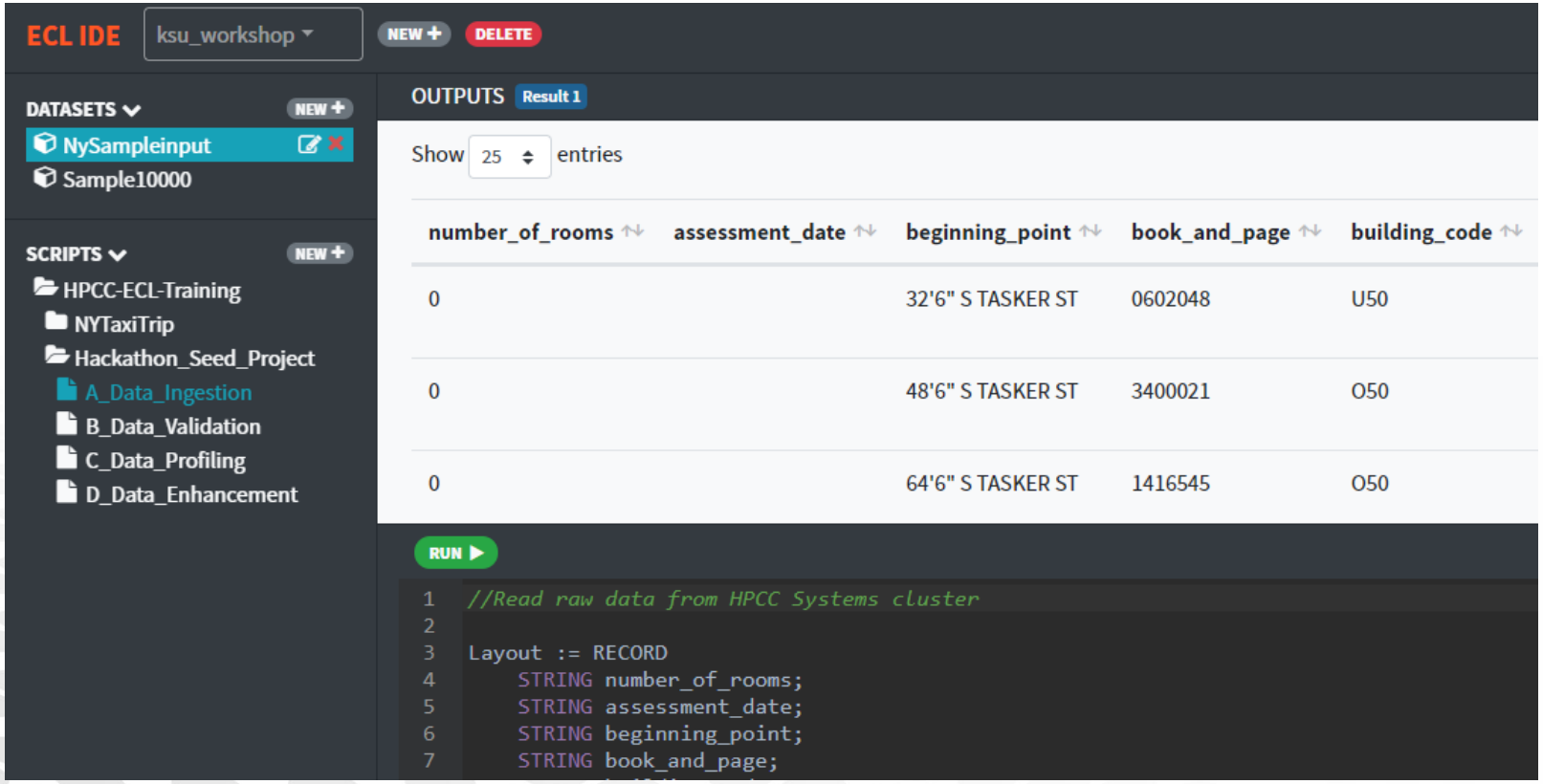
To ingest the dataset in ECL Cloud IDE, you can use DATASET function, such as:

raw := DATASET('~Mike::HPCCSystems::test.csv‘, Layout, CSV(HEADING(1)));

# Hackathon Tips – cont.

4. Try the Hackathon_Seed_Project in ECL Cloud IDE.

This project shows a few sample steps that help you familiar with the Property Assessment sample dataset -- Sample10000. It's uploaded to the shared WorkSpace KSU_Workshop.



# Hackathon Tips – cont.

- **Note:**
- The sample dataset Sample10000 only includes 10,000 records of the original Property Assessment dataset. Your solution should apply to the original Property Assessment Dataset as final result.

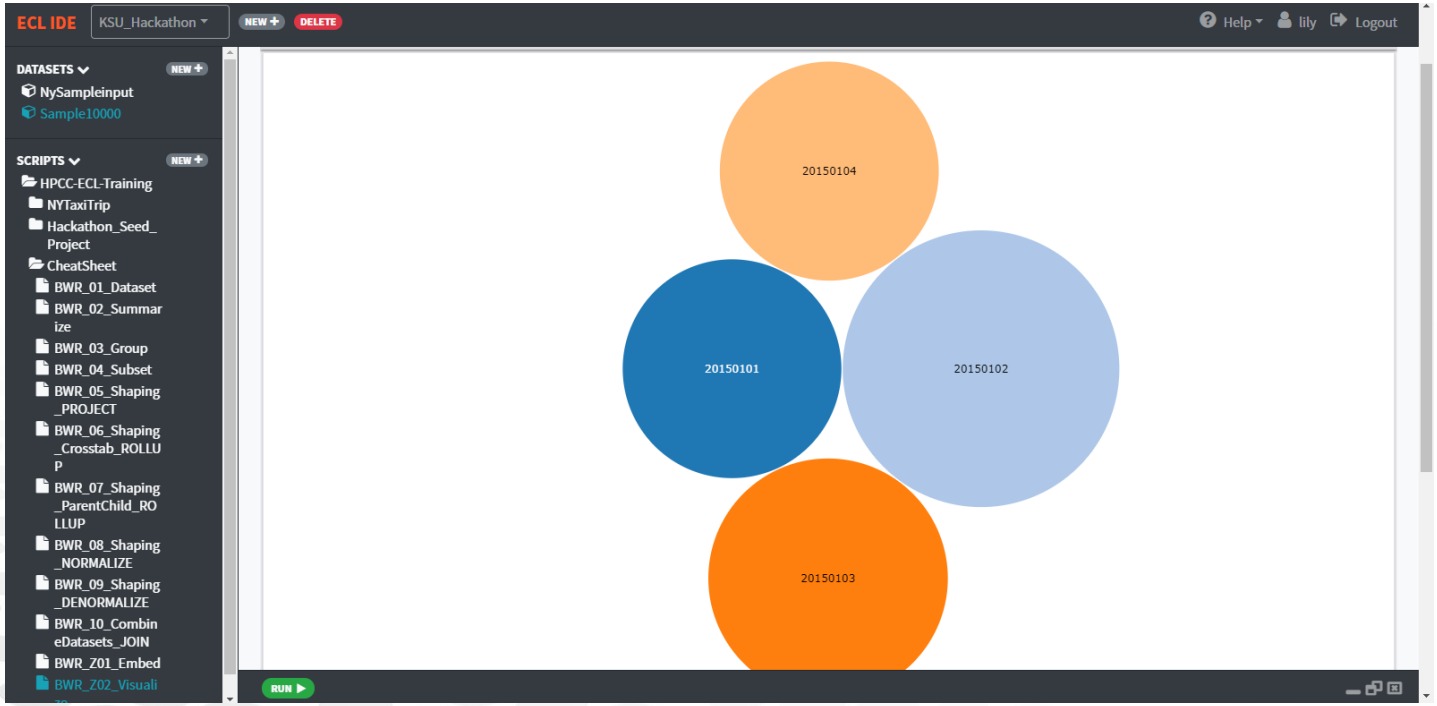
- The original Property Assessment dataset can be accessed as below in A_Data_Ingestions file:

```
propertyDS := DATASET('~ksu::hackathon::opa_properties_public.csv', Layout,
                                                                    CSV(HEADING(1)));
```

# Hackathon Tips – cont.

## 5. Try the CheatSheet in ECL Cloud IDE.

This project is a great resource to quick start ECL programming. It includes most frequently used ECL functions such as DATASET, PROJECT, TABLE, ROLLUP, NORMALIZE and also includes functions to visualize your data in HPCC Systems.



# Hackathon Tips – cont.

6. Understand Property Assessment Data via Data Dictionary:

https://github.com/lilyclemson/KSU_Hachathon2019/blob/master/Data_Dictionary.pdf

# Hackathon Tips – cont.

7. Other HPCC Systems KSU hackathon related ECL Code examples and slides are available at Git repository KSU_Hackathon2019 :

https://github.com/lilyclemson/KSU_Hachathon2019

# Hackathon Tips – cont.

8. Welcome to join our #hpcc Channel to interact with mentors and ask questions via below slack space or click on below link:

#ksuccsehackathon:  ksuccsehackathon.slack.com

https://join.slack.com/t/ksuccsehackathon/shared_invite/enQtNzY0MjY0NjQyNzc0LTUzYzYzMTBhYmIzMjFmNjlkYTYwZDRmMGI3MzFkOGE1ZTQ2MDIzYWM3MGEzZjJkZTMwNjJjNmM5ZDNlOWFhYzQ

# Hackathon Tips – cont.

9. If you are unable to connect to the ECL Cloud IDE due to internet issue or other reasons, please use below link to access the instruction of how to use VSCode as a local ECL IDE

https://github.com/lilyclemson/KSU_Hachathon2019/blob/master/vscode_hpcc_install.pdf

NOTE: VSCode ECL configuration file can be found here:
https://github.com/lilyclemson/KSU_Hachathon2019/tree/master/.vscode

# Helpful Links

- Introduction of HPCC System
  https://hpccsystems.com/about
- ECL CheatSheet:
  https://github.com/hpcc-systems/HPCC-ECL-Training/tree/master/CheatSheet
- Introduction of HPCC Systems Machine Learning Library
  https://hpccsystems.com/download/free-modules/machine-learning-library
- ECL Machine Learning Examples:
  https://github.com/hpcc-systems/HPCC-ECL-Training/tree/master/NYTaxiTrip
  https://github.com/lilyclemson/HPCC-ECL-Training/tree/master/StockTrade
- Other Documentations
  https://hpccsystems.com/training/documentation
- Opportunity to attend HPCC-Systems-Summit-2019
  https://hpccsystems.com/community/events/hpcc-systems-summit-2019

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