

## ML Model Building hand-on lab steps:

- Log-in in to your Bluemix account → <https://console.bluemix.net/> and provision below 3 service instance:

1. Apache Spark
2. Object Storage
3. Machine Learning

NAME	SERVICE OFFERING	PLAN	ACTIONS
ML-ISTCLab2017	Machine Learning	Free	⋮
OS-ISTCLab2017	Object Storage	Free	⋮
Spark-ISTCLab2017	Apache Spark	Personal-Free	⋮

- Open the Machine Learning instance to go to “Data Science Experience” portal for Train, Test and score models using Spark MLib or Python scikit-learn.

Data & Analytics / ML-ISTCLab2017

## ML-ISTCLab2017

### Dashboards

IBM Watson Machine Learning provides a set of REST APIs for integrating predictive capabilities with your Bluemix or standalone applications.

#### SPSS Streams Service

- Create your data model using [IBM SPSS Modeler \(Free Trial\)](#)
- Upload your model to the Watson Machine Learning service
- Call the scoring API from your app

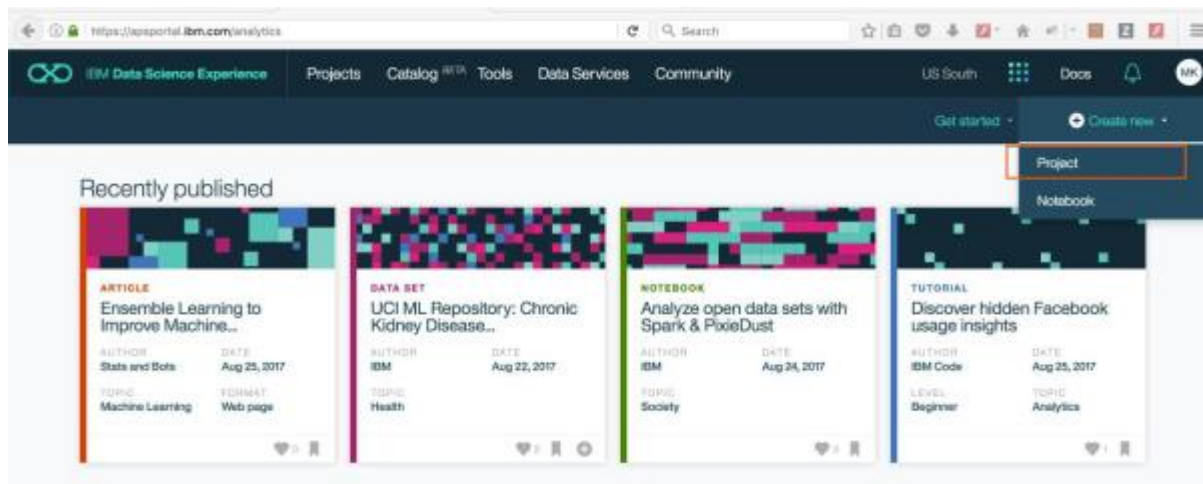
Launch Dashboard

#### Watson Machine Learning

- Train, test models and score data using the powerful Spark MLib or Python scikit-learn
- Collaborate with Data Scientists using [Data Science Experience](#)
- Deploy and manage models as realtime REST APIs, batch jobs (beta), or stream processing pipelines (beta)

Launch Dashboard

- Launch the Data Science Experience → <https://apportal.ibm.com/> . Click on “Create new” → Project.



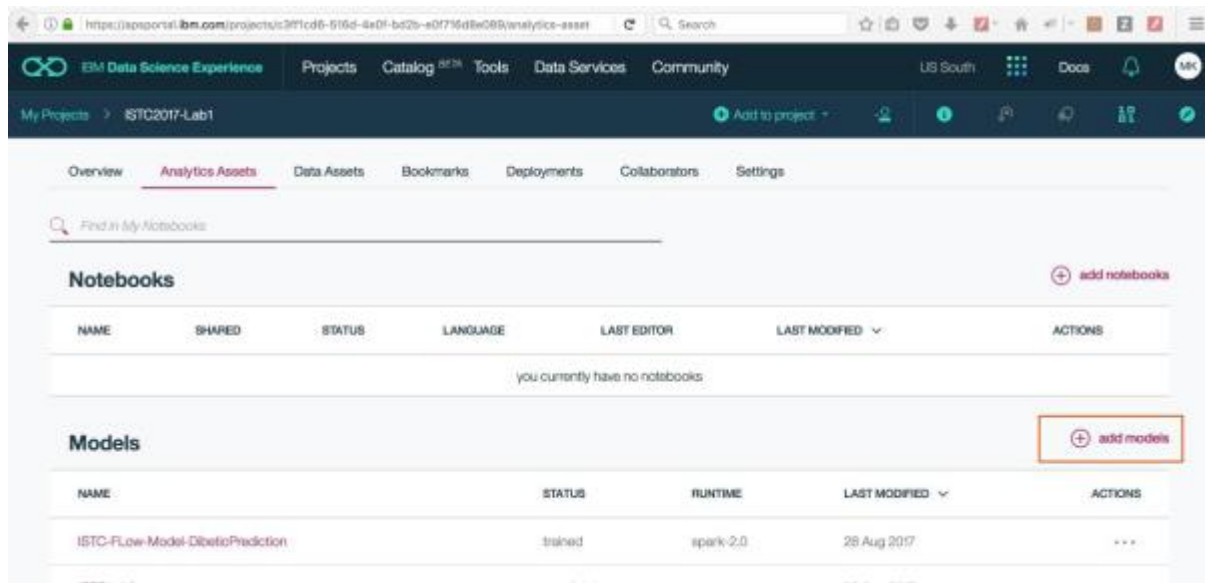
- Provide the “Project name”, “Spark Service” and “Object Storage” Instance in the create project page

 This screenshot shows the 'Create new project' page. The page has a dark blue header with the IBM Data Science Experience logo and navigation links. The main content area is white and contains several form fields:
 

- Name:** A text input field containing 'ICTS2017-Lab1'.
- Description:** A large text area with a placeholder 'Project description'.
- Spark Service:** A dropdown menu showing 'Spark-ISTCLab2017'.
- Storage Type:** Two radio buttons: 'Object Storage (Swift API)' (selected) and 'Object Storage (S3 API)'.
- Target Object Storage Instance:** A dropdown menu showing 'OS-ISTCLab2017'.
- Target Container:** A text input field containing 'ICTS2017Lab1'.

 The page also includes a warning message about associating the same Spark service with multiple projects.

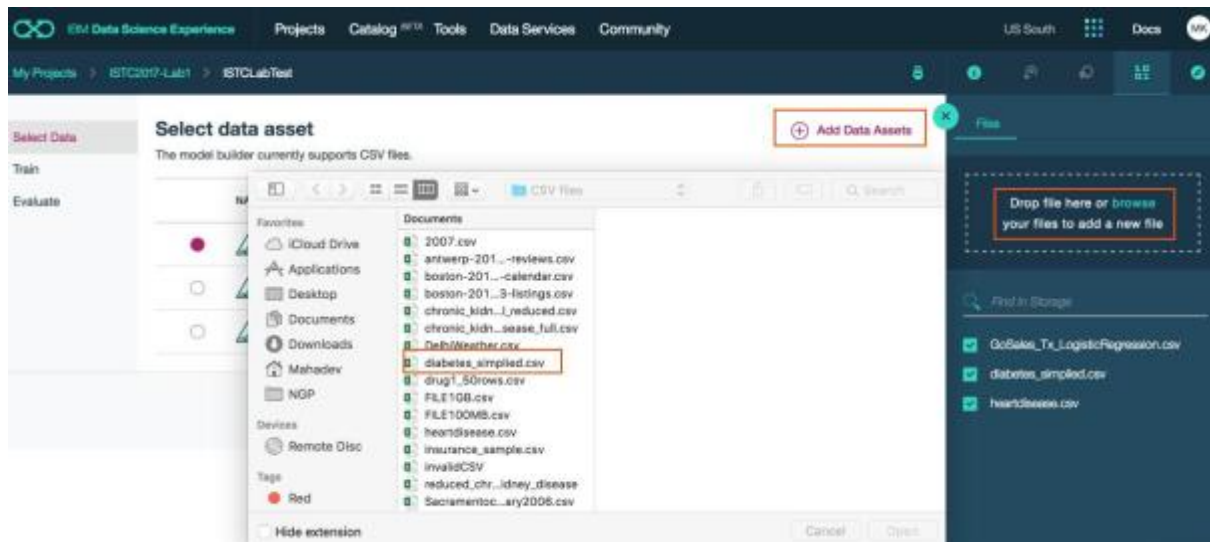
- Once project is created click on “add models” to create a ML models



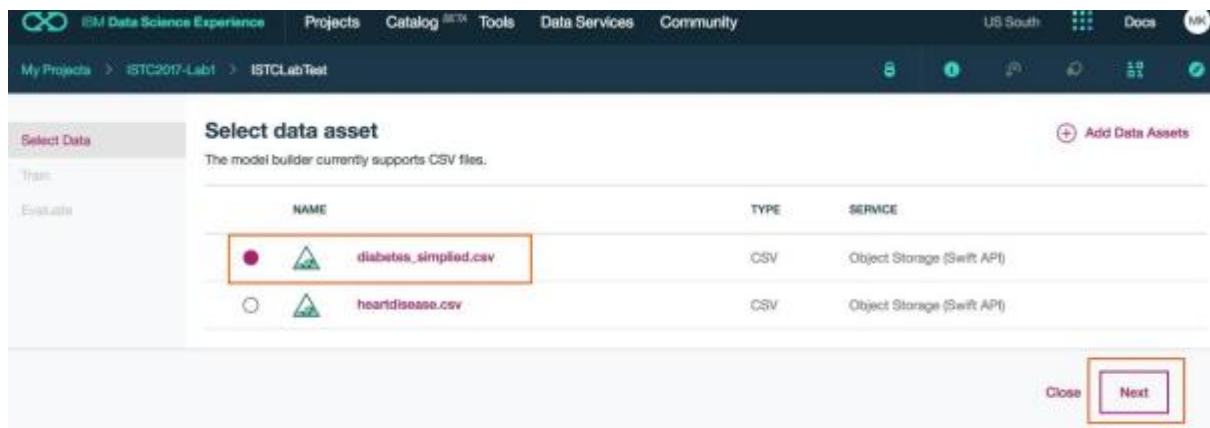
- Provide the “Model name”, “Machine Learning” and “Spark Service” instance name. You can select data preparation as “Automatic” or “Manual” according to your requirement.

The screenshot shows the 'Create new model' form. The form has fields for 'Name' (ISTCLabTest), 'Description' (Model description), 'Machine Learning Service' (ML-ISTCLab2017), and 'Spark Service' (Spark-ISTCLab2017). There are two radio buttons for 'Automatic' and 'Manual' data preparation. The 'Automatic' option is selected. At the bottom, there are 'Cancel' and 'Create' buttons.

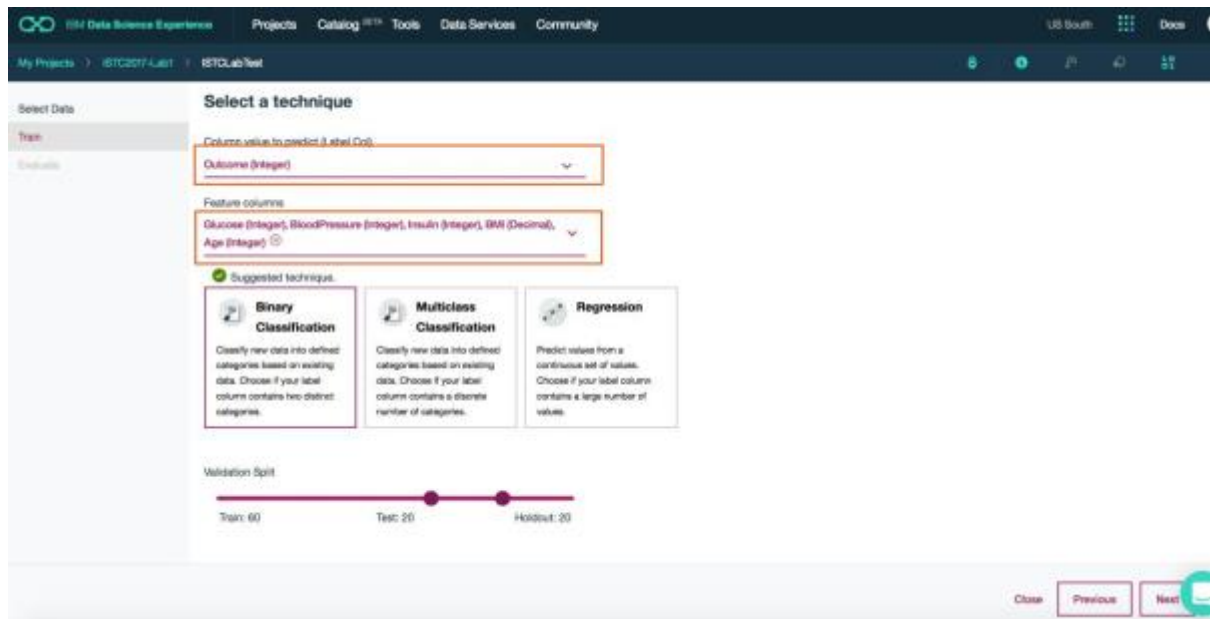
- Once the model is created you will land to “Select data asset” page. You can add your dataset to the “Data Assests” by clicking on “Add Data Assets”.



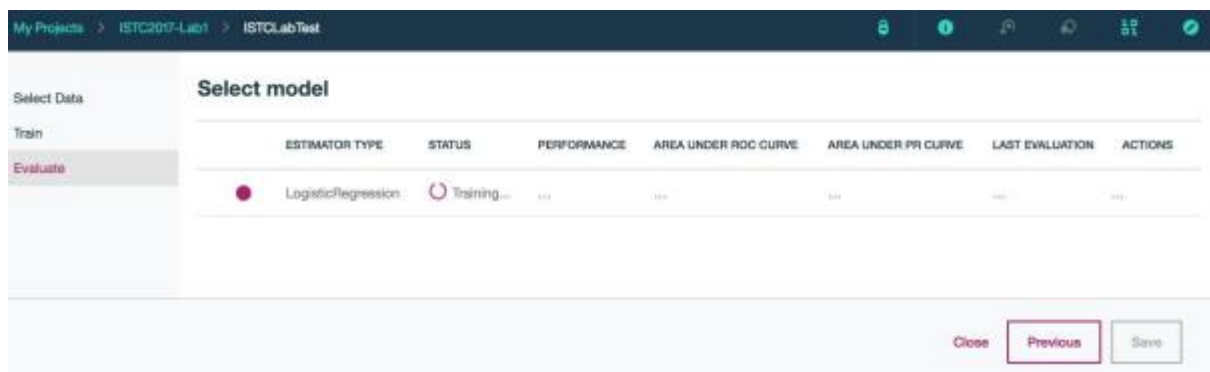
- Once the data set is added to the “Data Assets” it lists in the “Select data asset” page. Now user can select the required data set and click next.



- Once the data is loaded, in the next page user can “label column” and “feature column” and select the which spark ML algorithm and technique to be used in case of Manual data preparation. In case of “Automatic Data Preparation” technique is auto selected based on the “label column” and “feature column” etc.
- Adjust the amount of input you want to use for “Train” “Test” and “Hold-out” and click on the Next button.



- In the next page Model will be trained and evaluated. User can save the trained model by clicking on “Save”.



- User can deploy the model by clicking on “Add Deployment” and Select type as “Online”

My Projects > ISTC2017-Lab1 > ISTCLab1

Details Predictions

ISTCLab1

Machine learning service	ML-ISTCLab2017
Label column	Outcome
Model builder details	<a href="#">View</a>
Training data schema	<a href="#">View</a>
Input data schema	<a href="#">View</a>
Runtime environment	spark-2.0
Training date	28 Aug 2017, 3:05 PM

Deployments + Add Deployment

NAME	DEPLOYMENT TYPE	ACTIONS
Dibetoprediction	Online	...

- Before using the online deployed model, user can test the prediction with test datasets from the “predictions” section in below page.

My Projects > ISTC2017-Lab1 > ISTCLab1

Details Predictions

The predictor simulates scoring your prediction data with an undeployed model.

Spark Service  
Spark-ISTCLab2017

Prediction input data

Glucose  
148

BloodPressure  
72

Insulin  
0

BMI  
33.6

[Predict](#)

Predicted value for Outcome 1.00

20% 40% 60% 80% 100%

1 83.28%

34.72%

- Open the online deployments that just deployed to view the online scoring endpoint for integrating in user application or stand-alone online scoring using CURL.

Details Test API

Deployment Details

Name	DiabetesPrediction
Type	online
Scoring End Point	<a href="https://bm-watson-ml.mybluemix.net/v3/ml_instances/cb5bd88b-ed9c-4854-b515-55339af7be71/published_models/b31e58c4-55ad-4490-8a2d-8a33eac3ee6c/deployments/b355a5b1-f1fe-4099-9a8f-8eb1d0771da0/online">https://bm-watson-ml.mybluemix.net/v3/ml_instances/cb5bd88b-ed9c-4854-b515-55339af7be71/published_models/b31e58c4-55ad-4490-8a2d-8a33eac3ee6c/deployments/b355a5b1-f1fe-4099-9a8f-8eb1d0771da0/online</a> Submit a POST request to retrieve scoring output. <a href="#">View API specification</a> 📄
Status	ACTIVE
Associated Model	ISTC2019