**Introduction**

Golden bank wants to expand its business by offering *low-rate mortgage renewals* for online applications.

Why online applications?

* Expand the banks customer reach and reduce the bank’s application processing costs.

Goal is to create a mortgage approval model that avoids unanticipated risk and *treats all applicants fairly.*

How?

* Run a Jupyter notebook to build a model and automatically capture meta data that tracks the model in AI fact sheets and then deploy the model.
* Sign up for the AI governance use case in the data fabric trial at ibm.biz/data-fabric-trial

**Model building and deployment**

We need *Watson Studio, Watson Machine Learning, Watson Knowledge Catalog, and Cloud Object Storage*.

Home screen 🡪 Take a tutorial 🡪 AI governance 🡪 Build and deploy a model 🡪 Create Project 🡪 Side bar 🡪 Catalog 🡪 Create if we don’t have one already 🡪 Enforce data policies 🡪 Create catalog

Side bar 🡪 Catalogs 🡪 Model inventory 🡪 Create a new model entry and provide a description 🡪 Save the model entry

Side bar 🡪 projects 🡪 view all projects 🡪 AI governance 🡪 Assets tab 🡪 Notebooks 🡪 Model training with factsheets notebook 🡪 It will be in read only mode 🡪 Edit the notebook (pencil symbol on top right) 🡪 Create an API key if you don’t have one already (cloud.ibm.com/iam/apikeys) 🡪 Run all the cells in the notebook

Return to the Projects/Assets tab 🡪 It will show the fact sheet for the model ran 🡪 Select ‘Track this model’ to add the model to the model inventory 🡪 Associate it with the model entry that we created earlier

Open the model in the Projects tab 🡪 click ‘promote to deployment space’ 🡪

Graphical user interface, application

Description automatically generated

Create the deployment space 🡪 Check the ‘go to the model in the space after deploying it’ 🡪 Promote the model 🡪 New deployment 🡪 Graphical user interface, application, Teams

Description automatically generated

After successful deployment navigate back to the model inventory.

Side bar 🡪 Model Inventory 🡪 Open mortgage approval model entry 🡪 Asset 🡪 We can see model is in the deploy stage.

**Test and validate the model:**

Cloud Pak for data home screen 🡪 Sidebar 🡪 Service instances 🡪 Check that all the required service instances are present. If not, create service instance (select service 🡪 select lite plan 🡪 create the service).

Projects 🡪 AI governance 🡪 Assets 🡪 Open notebook 2-monitor… 🡪 Edit the notebook 🡪

Run all cells in the notebook 🡪 Comments help understand each line of the code 🡪 Make sure you understand what every cell does.

Projects 🡪 AI governance 🡪 Assets 🡪 Data 🡪 Data Assets 🡪 Download hold out data set.

Side bar 🡪 Service Instances 🡪 Open ‘Watson Open Scale’ 🡪 Import hold-out data (Actions button at top right) 🡪 View the model deployment details (Check for the quality, fairness etc.,)

Explain a transaction icon (side bar) 🡪 Select the previously deployed model 🡪 Click explain for any transaction 🡪 Will get a screen like below

Chart, waterfall chart

Description automatically generated

Inspect the sensitivities in the inspect section

Side bar 🡪 Model Inventory 🡪 Open Mortgage approval model entry 🡪 Asset tab 🡪 Edit the status to ‘promote to pre-production’ 🡪 Go to insights dashboard 🡪 Actions 🡪 Approve for production

Select ‘Export Report’ (Side bar 🡪 Catalogs 🡪 Mortgage approval catalog)