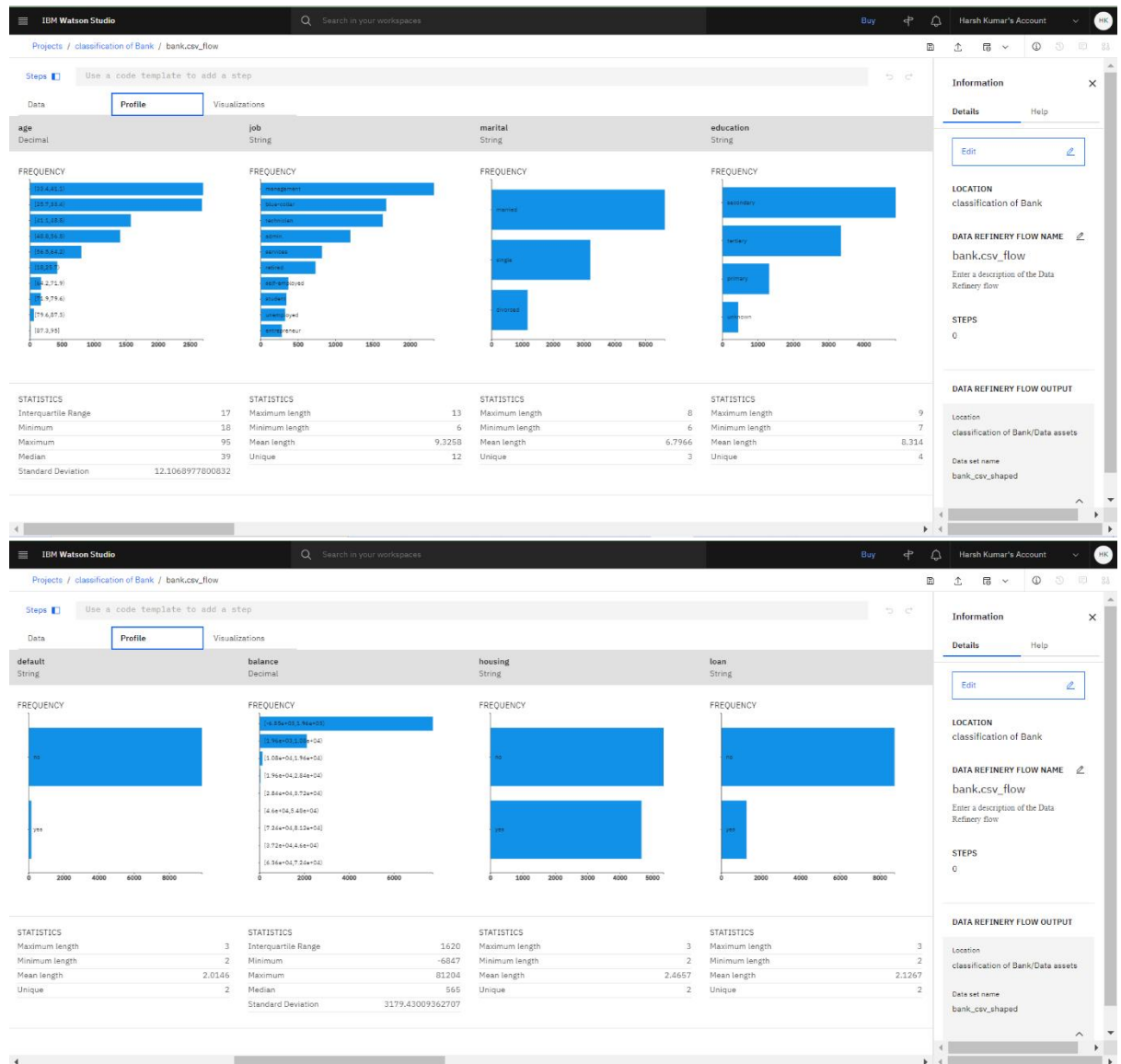


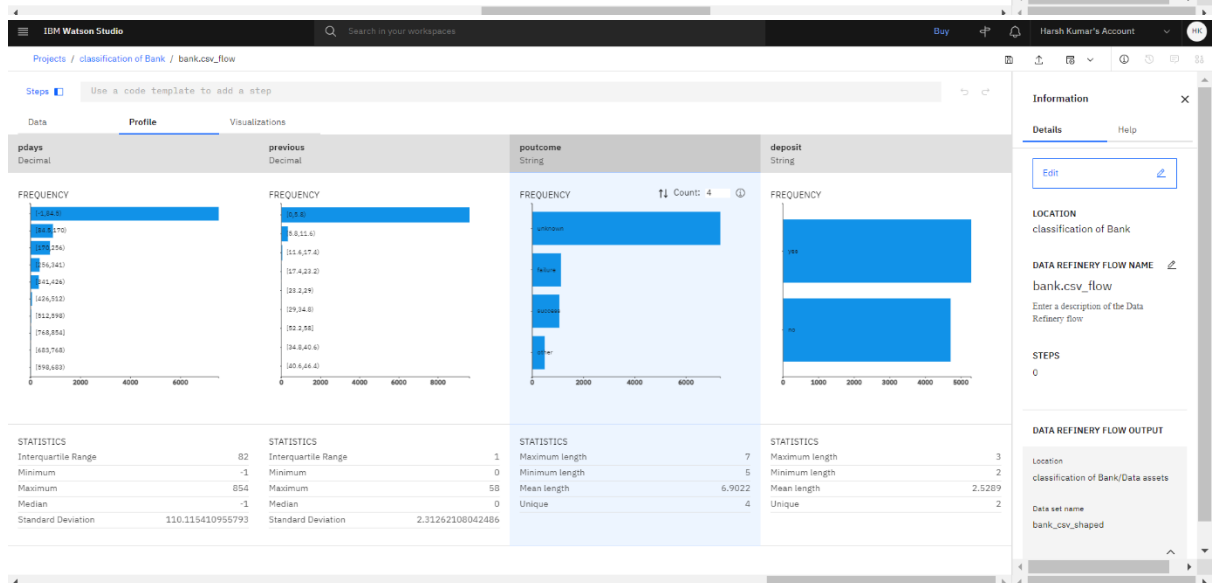
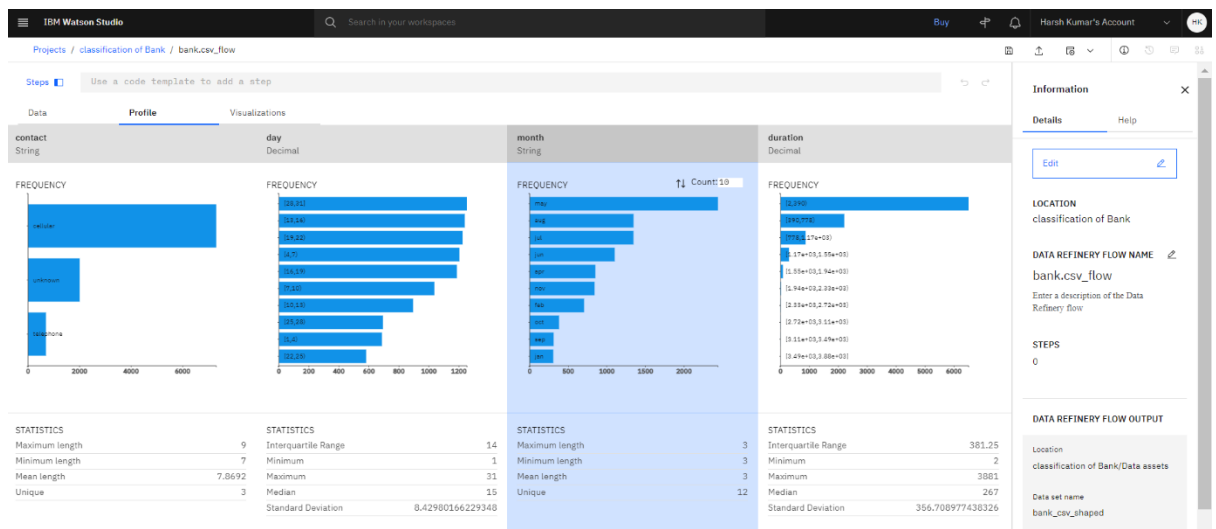
Data Analytics

Case Study: Classification of term deposit buyers for retail banking

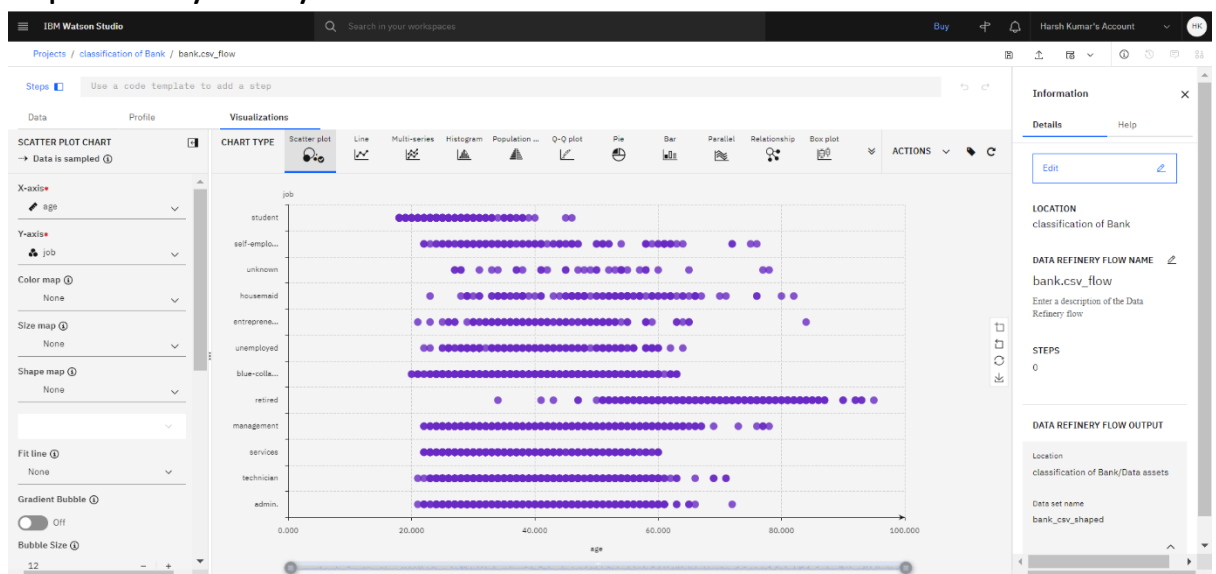
1. Data Refinery

- Descriptive analytics of data

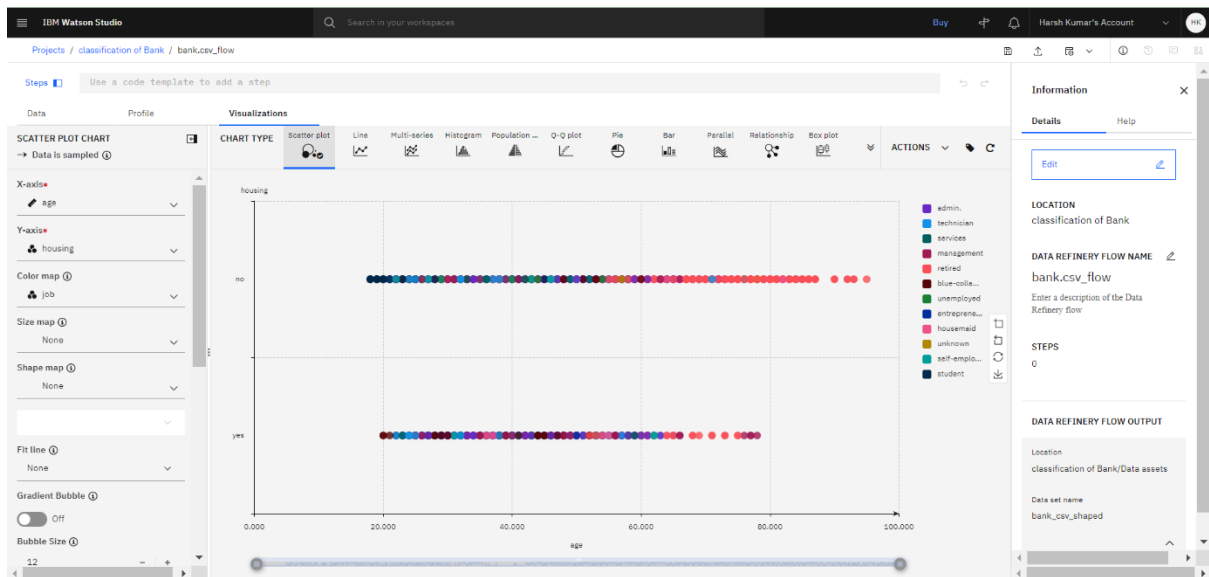




• Exploratory Analytics



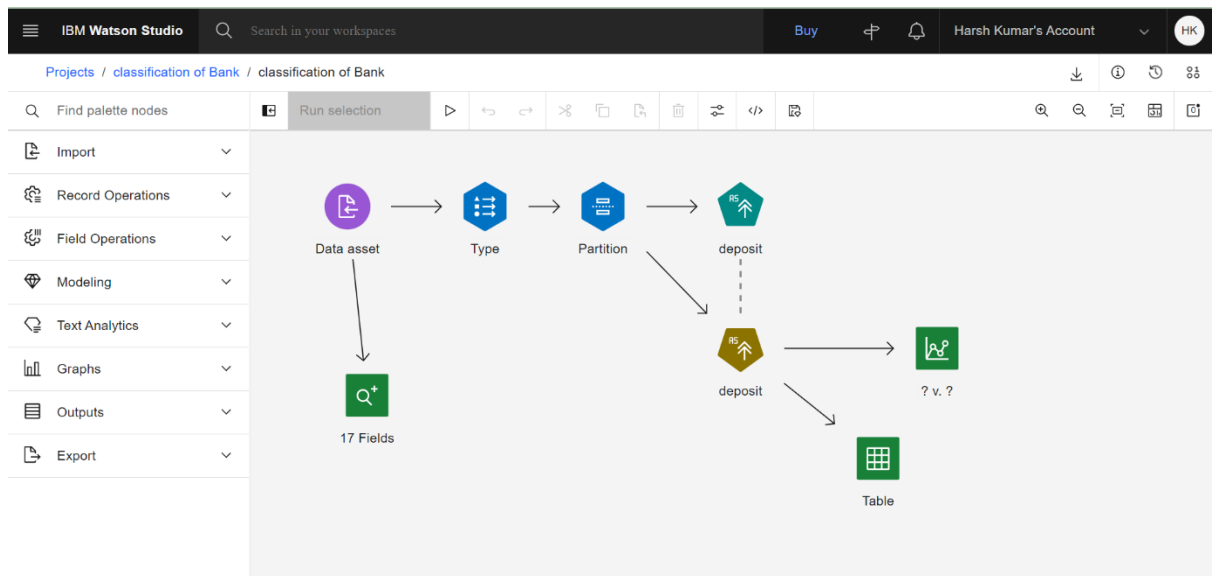
x-axis = Age ,y-axis=Job



x-axis=Age ,y-axis= housing.color=job

2.SPSS Modeler

- Model**



- Type node**

age as Input
 marital as input
 balance as input
 deposit as Output or target
 Other as none

IBM Watson Studio

Search in your workspaces

Buy Harsh Kumar's Account

Projects / classification of Bank / classification of Bank

Find palette nodes

Run selection

Import

Record Operations

Field Operations

Modeling

Text Analytics

Graphs

Outputs

Export

Data asset

Type

17 Fields

Type

Settings

Read values Clear values

Find in column Field

Field	Measure	Role	Value mode	Values
# age	Continuous	Input	Instantiated	18, 95
job	Nominal	None	Instantiated	admin., blue-collar, ...
marital	Nominal	Input	Instantiated	divorced, married, s...
education	Nominal	None	Instantiated	primary, secondary,...
default	Flag	None	Instantiated	no, yes
balance	Continuous	Input	Instantiated	-6847, 81204
housing	Flag	None	Instantiated	no, yes
loan	Flag	None	Instantiated	no, yes

Default mode

☒ Read metadata ☐ Pass (do not scan)

Cancel Save

- Partition node
 - Training – 70%
 - Testing – 30%

IBM Watson Studio

Search in your workspaces

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Graphs

Outputs

Export

Data asset

Type

Partition

17 Fields

Partition

Settings

Derived Field Name

Partition

Training Partition(%)

70

Testing Partition(%)

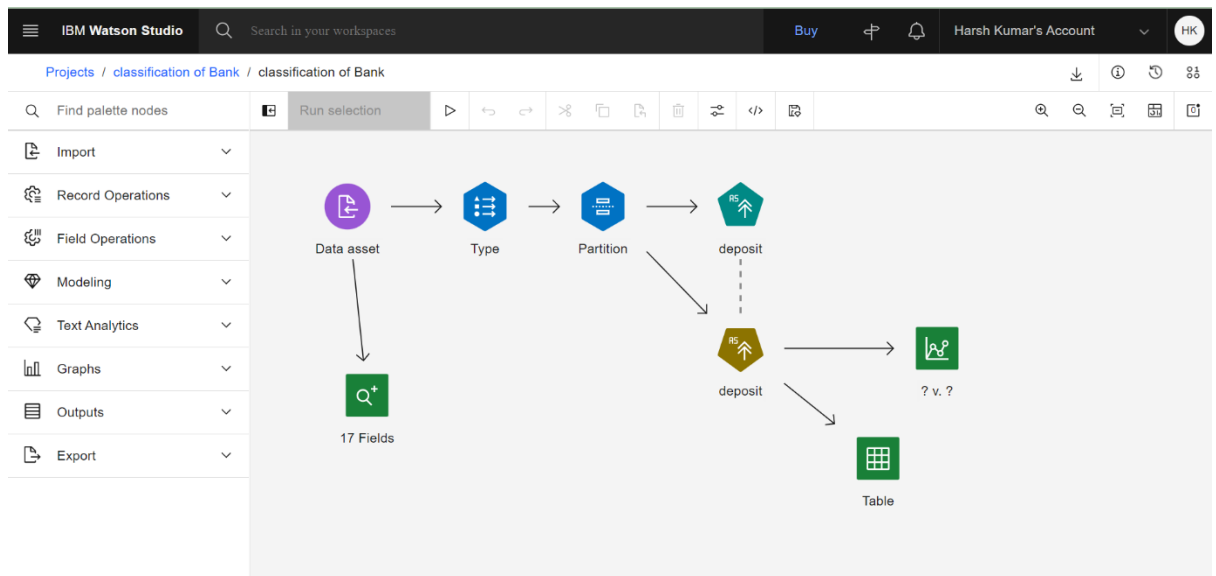
30

☐ Create validation partition

☒ Repeatable partition assignment

Cancel Save

- Model



- Output

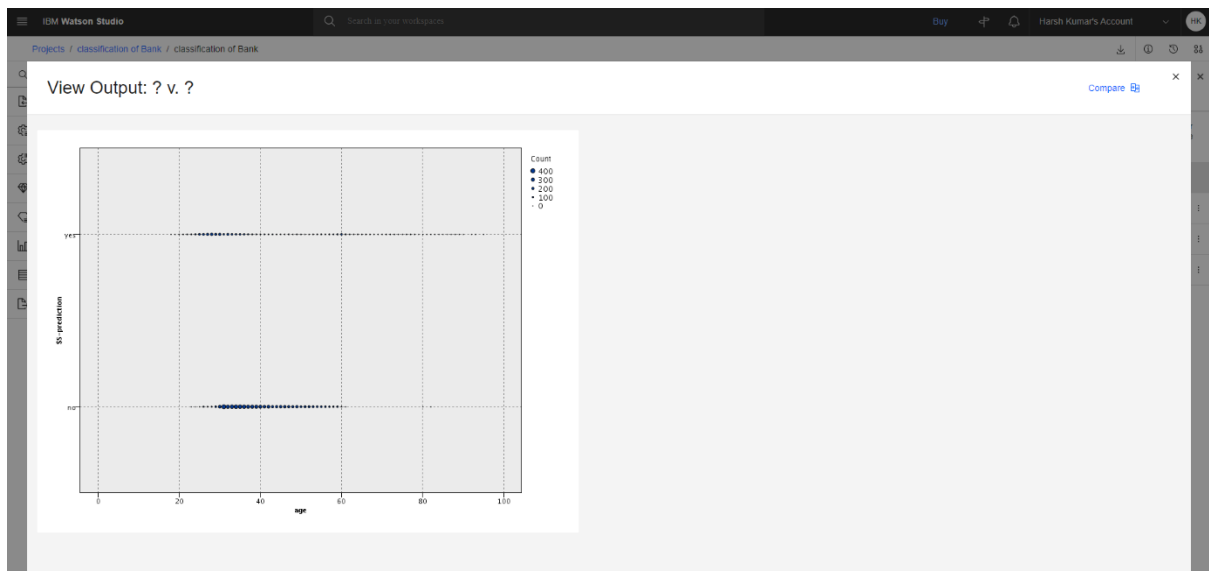
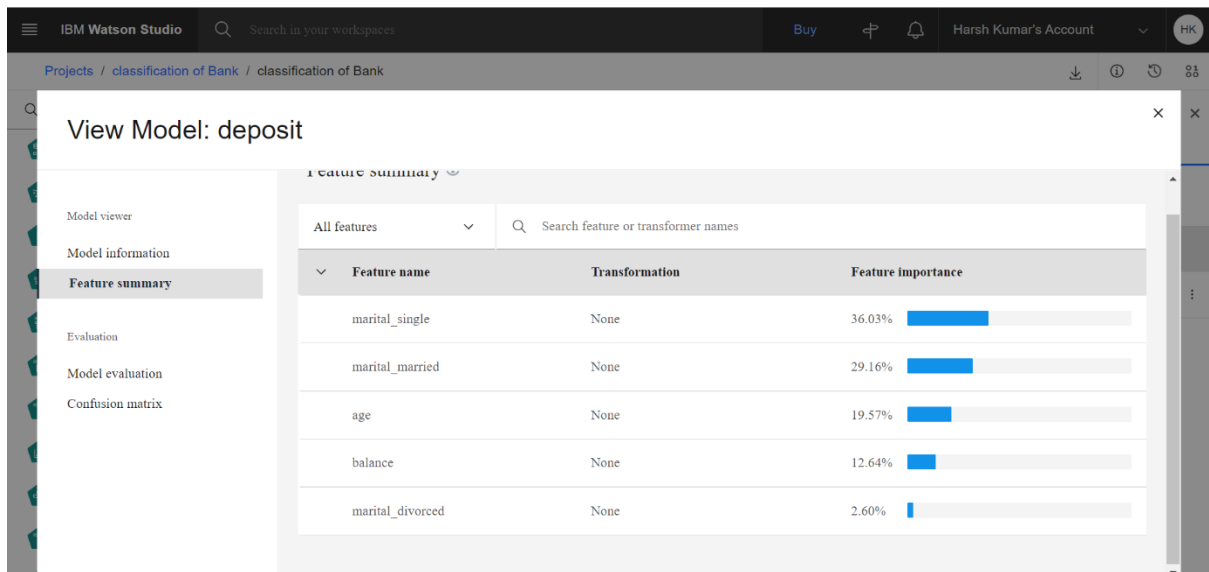
The screenshot shows the 'View Model: deposit' page in IBM Watson Studio. The left sidebar lists the following sections: Model viewer, Model information, Feature summary, Evaluation, **Model evaluation** (selected), and Confusion matrix. The main content area displays the 'Model evaluation' section with the following table:

Model evaluation measure	
Accuracy	0.646
Precision	0.658
Recall	0.525
F1	-0.420

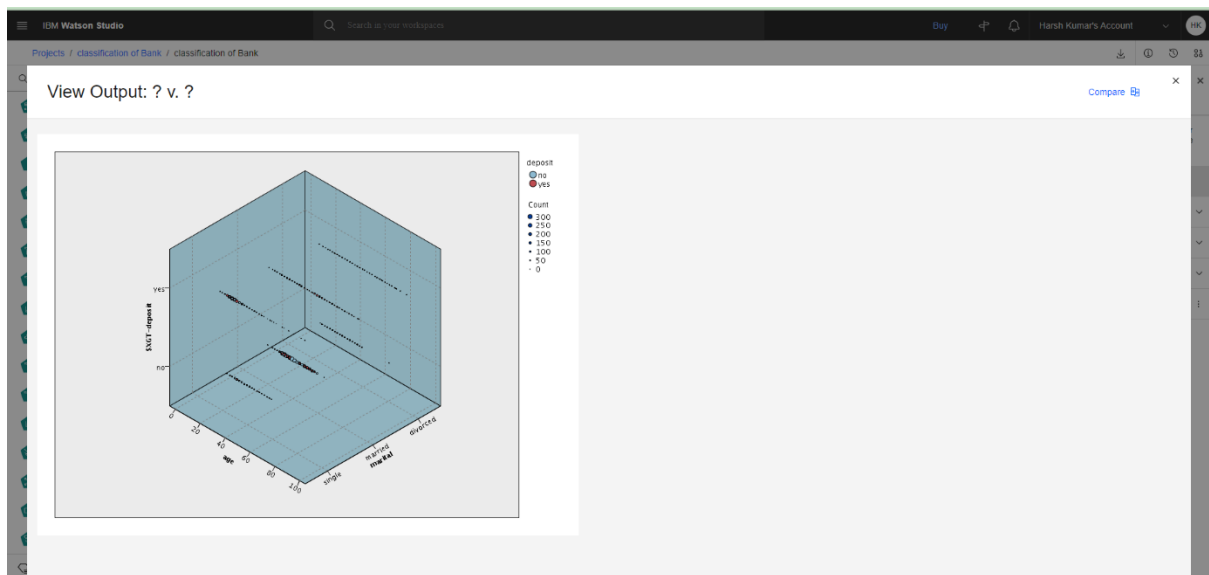
The screenshot shows the 'View Model: deposit' page in IBM Watson Studio, specifically the 'Confusion matrix' section. The left sidebar lists the following sections: Model viewer, Model information, Feature summary, Evaluation, Model evaluation, and **Confusion matrix** (selected). The main content area displays the confusion matrix table and a color scale legend.

Observed	Predicted		
	0	1	Percent correct
0	3099	1753	63.9%
1	1004	1934	65.8%
Percent correct	75.5%	52.5%	64.6%

Below the table is a color scale legend ranging from 'Less correct' (blue) to 'More correct' (green).



x-axis = age,y-axis-\$ deposit



x-axis = age ,y-axis=\$XGTdeposit ,z-axis=marital, color=deposit

Data Audit

View Output: 17 Fields

	Field	Sample Graph	Measurement	Min	Max	Mean	Std. Dev	Skewness	Unique	Valid
1	age		Continuous	18	95	41.232	11.913	0.863	—	11162
2	job		Categorical	—	—	—	—	—	12	11162
3	marital		Categorical	—	—	—	—	—	3	11162
4	education		Categorical	—	—	—	—	—	4	11162
5	default		Categorical	—	—	—	—	—	2	11162
6	balance		Continuous	-6847	81204	1528.539	3225.413	8.225	—	11162
7	housing		Categorical	—	—	—	—	—	2	11162
8	loan		Categorical	—	—	—	—	—	2	11162
9	contact		Categorical	—	—	—	—	—	3	11162

View Output: 17 Fields

9	contact		Categorical	—	—	—	—	—	3	11162
10	day		Continuous	1	31	15.658	8.421	0.111	—	11162
11	month		Categorical	—	—	—	—	—	12	11162
12	duration		Continuous	2	3861	371.994	347.128	2.144	—	11162
13	campaign		Continuous	1	63	2.508	2.722	5.546	—	11162
14	pdays		Continuous	-1	854	51.330	108.758	2.450	—	11162
15	previous		Continuous	0	58	0.833	2.292	7.335	—	11162
16	poutcome		Categorical	—	—	—	—	—	4	11162
17	deposit		Categorical	—	—	—	—	—	2	11162

IBM Watson Studio

Search in your workspace

Buy🔗🔔Harsh Kumar's Account

Projects / classification of Bank / classification of Bank

View Output: 17 Fields

Compare

	Field	Measurement	Outliers	Extremes	Action	Impute Missing	Method	% Complete	Valid Records	Null Value	Empty String	White Space	Blank Value
1	age	Continuous	0	11162	None	Never	Fixed	100.000	11162	0	0	0	0
2	job	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
3	marital	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
4	education	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
5	default	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
6	balance	Continuous	0	11162	None	Never	Fixed	100.000	11162	0	0	0	0
7	housing	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
8	loan	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
9	contact	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
10	day	Continuous	0	11162	None	Never	Fixed	100.000	11162	0	0	0	0
11	month	Categorical	--	--	--	Never	Fixed	100.000	11162	0	0	0	0
12	duration	Continuous	0	11162	None	Never	Fixed	100.000	11162	0	0	0	0
13	campaign	Continuous	0	11162	None	Never	Fixed	100.000	11162	0	0	0	0