



# Welcome Misba!

Watson Studio, Watson Knowledge Catalog, and Watson Machine Learning

## Start by creating a project

A project is how you organize your resources to work with data and collaborate with team members.

### Create a project

Create a project, and then add the tools and assets you need.

### Search a catalog

Find the assets you need in a catalog.

## Recently updated projects [View all \(1\)](#)

[New project +](#)

Name	Role	Collaborators	Date created	Last updated
<a href="#">BDCS predictive analytics -cust churn</a>	Admin		Jul 03, 2020	Jul 03, 2020

## Your catalogs [View all](#)

[New Catalog](#)

### Get started

Create a catalog to get started. A catalog is where you organize your assets (for example, your data, data connections, and analysis) and collaborators.

[Create Catalog](#)

## Watson services [View all \(1\)](#)

[Add service +](#)

Instance name	Service	Plan	Tool
<a href="#">WatsonMachineLearning</a>	Machine Learning		

## New in gallery

[DATA](#)[SAMPLE PROJECT](#)



My projects

New



Q Which project are you looking for?

[New project +](#)

All my projects ▾

Name	Role	Storage	Collaborators	Creator	Date created
BDCS predictive analytics - cust churn	Admin	COS		Misba Rajgoli	3 Jul 2020

[Show more](#)



My projects / BDCS predictive analytics -cust c...



Launch IDE

Add to project



Overview

Assets

Environments

Jobs

Deployments

Data

Load

Files

Catalog

What assets are you looking for?

## Data assets

0 assets selected.

<input type="checkbox"/>	Name	Type	Created by	Last modified	↓
<input type="checkbox"/>	CSV customer.csv	Data Asset	Misba Rajgoli	Jul 03, 2020, 12:26 PM	
<input type="checkbox"/>	CSV churn.csv	Data Asset	Misba Rajgoli	Jul 03, 2020, 12:26 PM	

## Modeler flows

New modeler flow

Name	Type	Created by	Last modified	↓
BDCS-customer churn modeler flow	SPSS Modeler	Misba Rajgoli	Jul 05, 2020, 01:45 PM	

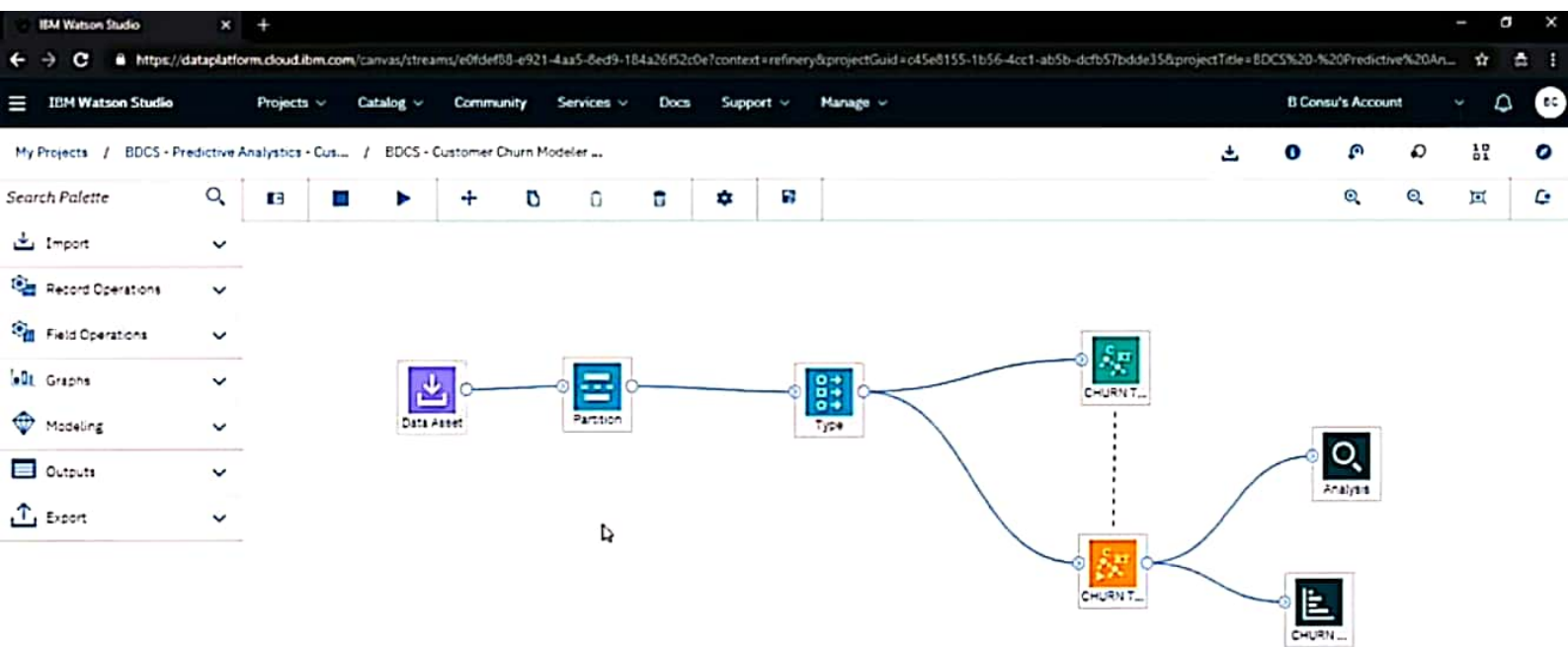
## Data Refinery flows

New Data Refinery flow

Name	Type	Created by	Last modified	↑
customer_flow	Data Refinery flow	Misba Rajgoli	Jul 03, 2020, 04:53 PM	
customer_flow_2	Data Refinery flow	Misba Rajgoli	Jul 04, 2020, 02:18 PM	
churn_flow	Data Refinery flow	Misba Rajgoli	Jul 05, 2020, 11:05 AM	

Drop files here or [browse](#) for files to upload.

customer.csv - Excel																
FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW ADD-INS POWER BI TABS																
C2																
ID	Gender	Status	Children	Est Income	Car Owner	Age	LongDist	Intermetio	Local	Dropped	Paymettic	LocalBtly	LongDist	Usage	RatePlan	
1	1 F	S	1	38000 N		24.39333	23.56	0	206.08	0 CC	Budget	Intnl_disc	229.84	3		
2	6 M	M	2	29619 N		49.42667	29.78	0	45.5	0 CH	FreeLocal	Standard	75.29	2		
3	8 M	M	0	15732.8 N		50.87333	24.81	0	22.44	0 CC	FreeLocal	Standard	47.25	3		
4	11 M	S	2	96.33 N		56.47333	26.13	0	32.88	1 CC	Budget	Standard	59.01	1		
5	14 F	M	2	52004.8 N		25.34	5.03	0	23.11	0 CH	Budget	Intnl_disc	28.34	1		
6	17 M	M	2	53010.8 N		18.84	12.45	0	46.42	4 CC	FreeLocal	Standard	58.87	1		
7	18 M	M	1	79004.5 N		64.8	26.52	0	32.19	0 CC	Budget	Intnl_disc	58.72	1		
8	21 M	M	0	19749.3 N		60.36667	20.22	0	13.94	0 CC	Budget	Standard	34.17	3		
9	22 M	S	1	57626.9 Y		43.30667	9.38	0	58.96	0 CC	Budget	Standard	48.35	2		
10	23 M	M	2	20078 N		32.86667	9.85	0	6.33	0 CC	Budget	Intnl_disc	15.98	4		
11	24 F	M	2	47902 N		26.03333	17.44	4.94	49.92	1 Auto	FreeLocal	Standard	72.31	2		
12	29 M	M	1	7545.96 Y		16.75333	22.39	0	178.36	0 CC	Budget	Standard	200.75	3		
13	35 F	S	0	78851.3 N		48.17333	0.37	0	28.66	0 CC	FreeLocal	Standard	29.04	4		
14	36 F	S	1	17540.7 Y		62.79667	22.17	0.57	13.45	0 Auto	Budget	Standard	36.2	4		
15	37 F	M	0	83891.9 Y		81.02	28.92	0	45.47	0 CH	Budget	Standard	74.4	4		
16	38 F	M	2	28220.8 N		38.79667	26.49	0	12.46	0 CC	FreeLocal	Standard	38.95	4		
17	40 F	S	0	28589.1 N		15.6	13.19	0	87.09	0 CC	FreeLocal	Standard	100.28	4		
18	42 F	M	2	5237.83 N		48.75333	13.32	8.05	56.64	0 CC	Budget	Standard	78.02	2		
19	45 M	S	2	89459.9 N		53.28	11.54	1.61	22.9	0 CC	FreeLocal	Standard	36.05	2		
20	48 F	S	1	13576.5 N		39.42667	14.83	0	25.66	0 CC	Budget	Standard	40.49	1		
21	52 F	M	2	67388 N		53.12	4.79	0.5	91.04	1 CC	Budget	Standard	96.33	3		
22	53 F	M	1	57063 Y		52.33333	16.79	0	81.3	0 CH	Budget	Standard	98.1	4		
23	54 F	M	2	84186.1 N		54.01333	3.28	0	11.34	1 CC	Budget	Standard	15.02	2		
24	60 F	S	1	7737.34 N		42.66667	11.05	0	50.84	0 CC	FreeLocal	Standard	61.9	4		
25	61 M	S	2	100020 N		50	21.37	0	293.24	0 CH	Budget	Standard	114.82	4		
26	62 F	M	2	45287.6 Y		29.02667	0	0	2.97	0 CC	Budget	Standard	2.97	3		
27	63 F	M	2	59613.1 N		34.32	12.37	0	163.41	0 CC	Budget	Intnl_disc	175.78	1		
28	65 F	S	1	18326.7 N		50.81333	0	0	1.34	0 CC	FreeLocal	Intnl_disc	1.34	1		
29	68 F	S	2	9559.78 N		51.38	18.31	0	59.59	0 CC	FreeLocal	Standard	77.91	3		



# Save Model

## Saving Mode

☒ Scoring branch

## Branch Terminal Node\*

CHURN Tree


## Model name\*

Customer Churn Model - BDCS

## Model description

## Machine Learning Service

pm-20-ny

 The **pm-20-ny** is saved to your project. You can access your model and create deployments from the Models section under Assets.

Cancel

Save

# Save Model

Saving Mode

☒ Scoring branch

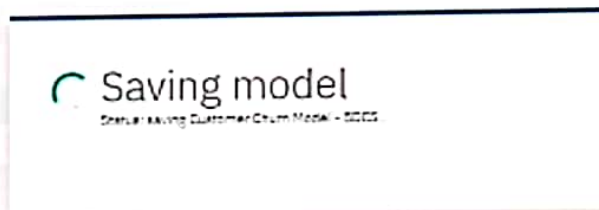
Branch Technical Node\*

CHURN Tree

Model name\*


Customer Churn Model - BDCS

Model description



Machine Learning Service

pm-20-ty

 The model will be saved to your project. You can access your model and create deployments from the Models section under Assets.

Cancel

Save

Data assets

 New data asset

0 asset selected.

<input type="checkbox"/>	NAME	TYPE	CREATED BY	LAST MODIFIED	ACTIONS
	customer_churn_log	Data Asset	B Conrau	9 Dec 2018, 1:04:21 pm	
	customer_log	Data Asset	B Conrau	9 Dec 2018, 12:13:14 pm	
	churn_log	Data Asset	B Conrau	9 Dec 2018, 12:14:17 pm	

Models



Watson Machine Learning models

 New Watson Machine Learning model

NAME	STATUS	TYPE	RUNTIME	LAST MODIFIED	ACTIONS
Customer Churn Model - BDCS	trained	spss-modeler-10.1	spss-modeler-10.1	9 Dec 2018	
BDCS prediction model	trained	scikit-learn-0.19	python-3.5	9 Dec 2018	
prediction model	trained	scikit-learn-0.19	python-3.5	9 Dec 2018	

Notebooks

 New notebook

NAME	SHARED	DOWNLOADED	STATUS	LANGUAGE	LAST EDITOR	LAST MODIFIED	ACTIONS
[REDACTED]							9 Dec 2018  



## Customer Churn Model - BDCS

- Overview
- Evaluation
- Deployments
- Usage

➕ Add Deployment

NAME	STATUS	DEPLOYMENT TYPE	ACTIONS
------	--------	-----------------	---------

Your model is not deployed.



### Customer Churn Model - BDCS

Overview Evaluation Deployments Usage

[+ Add Deployment](#)  
ACTIVE

NAME	STATUS	DEPLOYMENT TYPE
------	--------	-----------------

Your model is not deployed.



## Create Deployment

### Define deployment details

Name

BICS Customer Churn Deployment

Description

Deployment description

300

Deployment type


☒ Web service

Cancel

Save...

### BDCS Customer Churn Deployment

Overview Implementation Test

Enter input data  

ID

1

Gender

F

Marital Status

I

Children

Predict



## BDCS Customer Churn Deployment

Overview Implementation Text

Enter input data



Children

1

Est Income

35000

Car Owner

N

Age

24

Predict



### BDCS Customer Churn Deployment

Overview Implementation Test

Enter input data

LongDistanceBilltype  
Intl\_discount

Usage  
210

RatePlan  
3

CHURN

Predict

```
{
  "fields": [
    "ID",
    "Gender",
    "Marital Status",
    "Children",
    "Est Income",
    "Car Owner",
    "Age",
    "LongDistance",
    "International",
    "Local",
    "Dropped",
    "Payment",
    "LocalBilltype",
    "LongDistanceBilltype",
    "Usage"
  ]
}
```

## New model

### Define model details

Name

Direct Machine Learning Model - Cart Data

55

Description

Model description

300

Machine Learning Service

pm-2019

▼

### Select model type

☒ Model builder ☐ From file ☐ From sample

#### Select runtime

Only Spark environments supporting Scala kernels can be used for model builder creation.

Default Spark Scala 2.11

▼

The selected runtime uses one driver with 1 vCPU and 4 GB RAM, and 2 executors each with 1 vCPU and 4 GB RAM. This runtime consumes 1.5 capacity units per hour.

⚠ Your Spark runtime will be automatically stopped when you save your model, or after 3 hours of inactivity. To avoid consuming extra capacity unit hours delete your model builder instance or stop your runtime when you are finished with it.

Learn more about capacity unit hours and Watson Studio pricing plans.

#### Automatic

Prepare my data and create a model  
Automatically

#### Manual

Let me prepare my data and select  
which models to train

Need something more flexible? Create a notebook or design a Modeler flow

Cancel

Sending...

My Projects

EDCS - Predictive Analytics - Customer Churn

Direct Machine Learning Model

Select Data




Train

Evaluate

Select data asset


The model builder currently supports CSV files and IBM Db2 Warehouse on Cloud data assets.

What asset are you looking for?

	NAME	TYPE	PROJECT
<input type="radio"/>	 churn.csv	Data Asset	Project
<input type="radio"/>	 customer.csv	Data Asset	Project
<input checked="" type="radio"/>	 customer_churn.csv	Data Asset	Project

Close

Next





Select Data

Train

Evaluate

## Select a technique

Column value to predict (Label Cn)

CHURN (String)

### Feature columns

Gender (String), Marital Status (String), Children (Integer), Est Income (Decimal), Car Owner (String), Age (Decimal), LongDistance (Decimal), International (Decimal), Local (Decimal), Unemployed (Integer), Married (String), LocalIDtype (String), LongDistanceIDtype (String), Usage (Decimal), Retention (Integer)

### Suggested techniques



#### Binary Classification

Classify new data into defined categories based on existing data. Choose if your label column contains two distinct categories.



#### Multiclass Classification

Classify new data into defined categories based on existing data. Choose if your label column contains a discrete number of categories.



#### Regression

Predict values from a continuous set of values. Choose if your label column contains a large number of values.

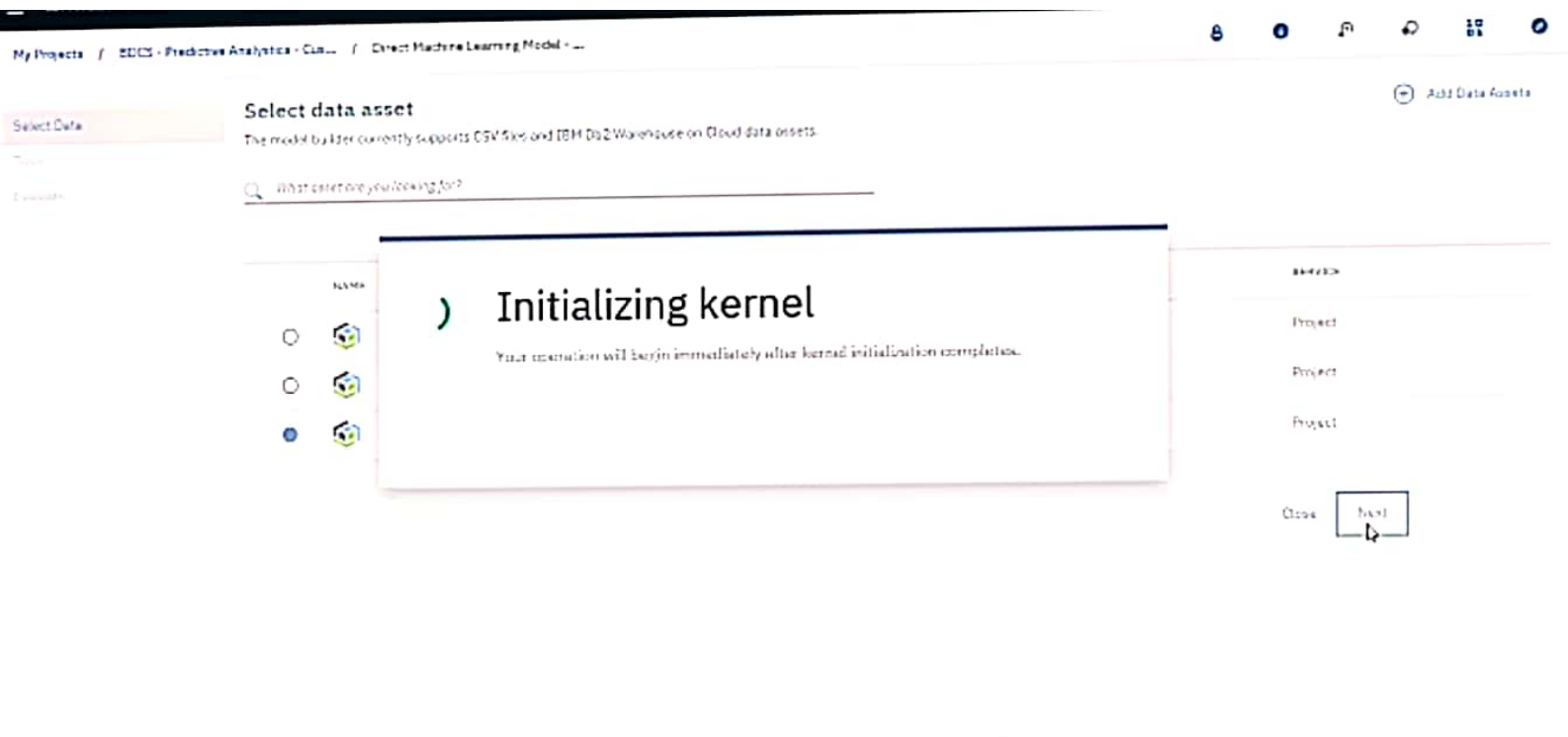
### Validation Split



+ Add Estimators

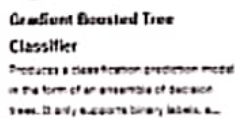
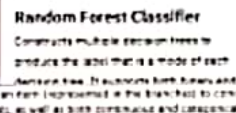
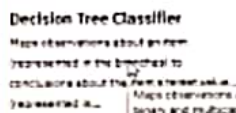
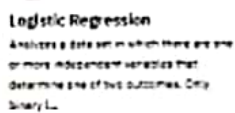
Configured estimators





Volok

**Q** What type of activities are you looking for?



104

Week 20

My Projects

/

SDCS - Predictive Analytics - C...

/

Direct Machine Learning Model - ...

Dashboard

Column value to predict (label Col)

CHURN (String)

Feature columns

Gender (String), Marital Status (String), Children (Integer), Est Income (Deci

Suggested techn

Binary Classification

Classify new data into categories based on ex data. Choose if your list column contains two di categories.

Training models

Statistical splitting data frames...

Validation Split

Train: 80

Test: 10

Holdout: 10

Close

Previous

Next

Configured estimators

Decision Tree Classifier

Not Yet Trained

Random Forest Classifier

Not Yet Trained

Select Data

Train

Evaluate

### Select model

	ESTIMATOR TYPE	STATUS	PERFORMANCE	AREA UNDER ROC CURVE	AREA UNDER PR CURVE	LAST EVALUATION	ACTIONS
<input checked="" type="radio"/>	RandomForestClassifier	Trained & Evaluated	Excellent	0.97893	0.9733	9 Dec 2018, 4:05 PM	⋮
<input type="radio"/>	DecisionTreeClassifier	Trained & Evaluated	Good	0.88711	0.87353	9 Dec 2018, 4:05 PM	⋮

Close

Previous

Save



Select Data

Train

Evaluate

### Select model

	ESTIMATOR TYPE	STATUS	PERFORMANCE	AREA UNDER ROC CURVE	AREA UNDER PR CURVE	LAST EVALUATION	ACTIONS
<input checked="" type="radio"/>	RandomForestClassifier	Trained & Evaluated	Excellent	0.97393	0.9733	9 Dec 2018, 4:05 PM	⋮
<input type="radio"/>	DecisionTreeClassifier					9 Dec 2018, 4:05 PM	⋮



## Saving model

Status: saving model Direct Machine Learning Model - Clus...



Done

Previous

Save

## Direct Machine Learning Model - Cust Churn 📄

Overview Evaluation Deployments Lineage

NAME	STATUS	DEPLOYMENT TYPE
Direct Churn Model	DEPLOY SUCCESS 👉	Web Service

➕ Add Deployment

ACTIONS



## Create Deployment

### Define deployment details

Name

Direct Churn Model

Description

Deployment description

100

Deployment type

☒ Web service



Cancel

Save...



## Direct Churn Model

Overview Implementation Test

Enter input data



ID

1

Gender

M

Marital Status

Children

0

✓

Predict



Direct Churn Model

Overview Implementation Test

Enter input data

LocalBillType  
Budget

LongDistanceCallType  
Intl\_discount

Usage  
230

RatePlan  
3

Predict

Predicted value for CHURN

T

