Projects / Clustering	Analysis for Banking					@•	Launch IDE v	Add to project +	(Î)	01
Overview	Assets	EnvironJvents —	Robs	Access control	Settings			Data	•	x
Q What assets are	eyoulookingfor?							Load	Files	Catalogs
Data assets 0 assets selected.								Drop	o files here or br	
☐ Name	T;	уре	Created by	La	st modified		$\downarrow$			
clv bank.csv	D	Data Asset	Sanyam Jain	Oe	ec 21.2021.12:22 PM					
Models										
Watson Machine	Learning models									
Name		Туре		Software specification	Last n	nodified	$\downarrow$			
Banking Analysis Clu	steri n <b>g model</b>	spss-mode	er 18.2	s pss—mod eler 18.2	Dec 2	21, 2021				
Modeler flows	;						New Mocleler flow +			
Name								F		

Models Load F iies Catalog Watson Machine Learning models D ra la fi les hei e or III a' se for Software specification  $\downarrow$ Type Name Last modified fi les to u ploacl. Banking Analysis Clustering model Dec21, 2021 s lass-model. r 18.2 spss-+roJeter 18.2 Modeler flows New "M owl e ler flow"." Name  $\downarrow$ Type Created by Last modified Term Deposit Classification Sanyam Jain Dec22,2021,11:47AM SPSS Moclelei Data Refinery flows New Data Refinery flow  $\downarrow$ Type Created by Last modified Name bank.csv\_flow Data Refinery flow Dec 21, 202i, 12:ñ6 PM Sanyam Jain

#### Projects / Clustering Analysis for Banking / bank.csv flaw

Use a code tenJpInte to add n step Steps @

	)ata	Profile	Visualizations					Details
	<b>age</b> Integer	String	String	Sfring	String	integer	String	Edit
1	59	admin.	married	secondary	no	2343	yes	Luit
2	56	admin.	married	secondary	no	45	no	LOCATION
3	41	technician	married	secondary	no	1270	yes	Ctustering Ana
4	55	services	married	secondary	no	2476	yes	
5	54	admin.	married	tertiary	no	184	no	DATA REFINERY
6	42	management	single	tertiary	no	0	yes	bank.csv_flo
7	S6	management	married	tertiary	no	830	yes	Enter a description of
8	60	retired	divorced	secondary	no	545	yes	
9	37	technician	married	secondary	no	1	yes	STEPS
10	28	services	single	secondary	no	5090	yes	1
11	38	admin.	single	secondary	no	100	yes	
12	30	btue-collar	married	secondary	no	309	yes	
13	29	management	married	tertiary	no	199	yes	DATA REFINERY
14	46	btue-collar	single	tertiarv	no	460	ves	
								Location

SOURCE FILE: bank.csv

SAMPLE sl ZE First 10000 rows

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Information

X

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Help

nalysis for Banking

RY FLOW NAME

flow

on of the Datn Refinery

RY FLOW OUTPUT

### Banking Analysis Clustering model

Activities

Overview

Input

Column

balance

campaign

contact

default

deposit

duration

day

ре

Promote to deployment space

Banking Analysis Clustering model

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Lost modified at Dec 28, 2P27 J:3 Z PM

Description No description provided. X

Created

Dec 21, 2021 9:31PM

spss-modeler 18.2

Model ID

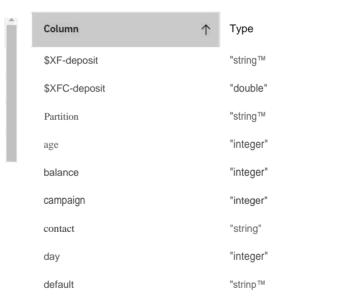
4b20a9d2-5004-4509-a0c6-61... [g

Softwa re specification spss-modeler 18.2

Hybrid pipeline software specifications

Addtags to make assets easier to find.

Output



"string" "integer"

Type

"integer"

"integer"

"integer"

"string"

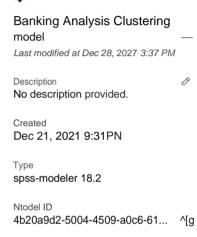
"integer"

"string™

education "strinp™

## Banking Analysis Clustering model

Overview	Activities				
Input			Output		
duration	"integer"		duration	"integer"	
education	"string™		education	"string"	
housing	"string™		housing	"string™	
job	"string"		job	"string"	
loan	"string"	_	loan	"string"	
marital	"string™	- 1	marital	"string™	
month	"string™	- 1	month	"string™	
pdays	"integer"	- 1	pdays	"integer"	
poutooive	"string"	- 1	poutcoive	"string"	
previous	"integer"		previous	"integer"	

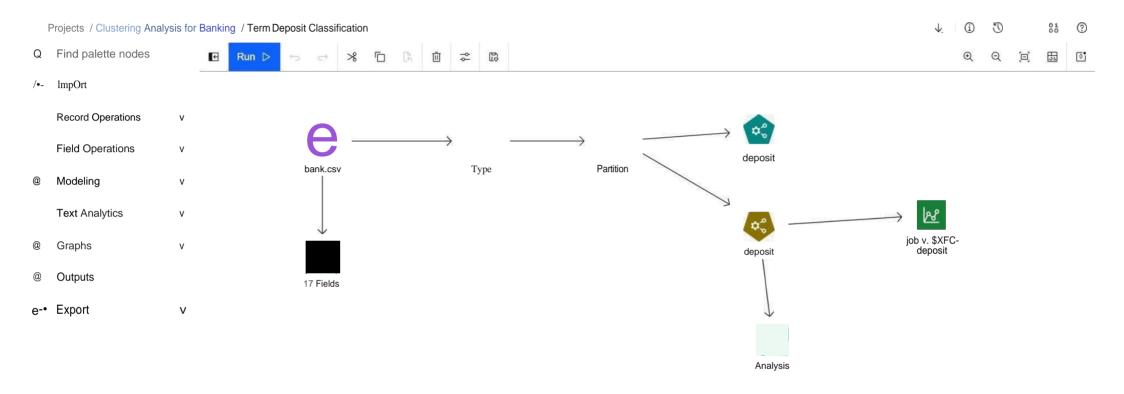


Hybrid pipe!ine software specifications

Software specification spss-modeler 18.2

Addtagstomakeassetseasiertofind.

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#### Read Va!rJes Clear API Values

### Q Find in column Field

Field	Measure	Role	Value mode	Values	Check	
tt age	Continuous	Input	Instantiated	18.95	None	@
abc job	Nominal	Input	Instantiated	admin blue-collar	None	@
abc marital	Nominal	Input	Instantiated	divorced. married,	None	@
abc education	Nominal	Input	Instantiated	primary. secondary	None	@
abc default	Flag	None	Instantiated	no. yes	None	@
@ balance	Continuous	Input	Instantiated	-6847. 81204	None	@
abc housing	Flag	Input	Instantiated	no. yes	None	@
abt loan	Flag	Input	Instantiated	no. yes	None	@

Format

#### @ F I LI « TO L‹ t1J!º! Fie ‹::

Field	Measure	Role	Value mode	Values	Check		
tt day	Continuous	Input	Instantiated	1. 31	None	@	"
abc month	Nominal	Input	Instantiated	apr. aug. dec. feb	None	@	
t duration	Continuous	Input	Instantiated	2. 3881	None	@	
t campaign	Continuous	Input	Instantiated	1. 63	None	@	
tt pdays	Continuous	Input	Instantiated	-1. 854	None	@	
tt previous	Continuous	Input	Instantiated	0.58	None	@	
abc pOutcome	Nominal	None	Instantiated	failure, other. succ	None	@	
abc deposit	Flag	Target	Instantiated	no. yes	None	@	

	Field	Sample Graph	Measurement	Min	Max	Mean	Std. Dev	Skewness	Unique	Valid
1	age		Continuous	18	95	44 .232	11.913	0863		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	B1204	1528.539	3225.413	8.225		11162
7	housing		Categorical						2	11162

7	housing		Categorical						2	11162
8	loan		Categorical						2	11162
9	contact		Categorical						3	11162
10	day		Continuous		31	15.658	8.421	0.111		11162
11	month		Categorical						12	11162
12	duration		Continuous	2	3881	371.994	347.128	2.144		11162
13	campaign	lon	Continuous		63	2.508	2.722	5.546		11162
14	pdays		Continuous	-1	854	51.330	108.758	2.450		11162

16	poutcome		Cat	egorical						4	11162
17	deposit		Cat	egorical						2	11162
	Field	Measurement	Outliers	Extremes	Action	Impute Missing	Method	% Complete	Valid Records	Null Value	Empty String
1	age	Continuous	132	0	None	Never	Fixed	100.000	11162	0	0
2	job	Categorical				Never	Fixed	100000	11162	0	0
3	mama	Categorical				Never	Fixed	100.000	11162	0	0
4	education	Categorical				Never	Fixed	100000	11162	0	0
5	default	Categorical				Never	Fixed	100.000	11162	0	0
6	balance	Continuous	99	74	None	Never	Fixed	100000	11162	0	0

7	housing	Categorical			-	Never	Fixed	100.000	11162	0	0
8	loan	Categorical				Never	Fixed	100.000	11162	0	0
9	contaci	Categorical	-			Never	Fixed	100.000	11162	0	0
10	day	Continuous	0	0	None	Never	Fixed	100.000	11162	0	0
11	month	Categorical				Never	Fixed	100.000	11162	0	0
12	duration	Conlinuous	179	22	None	Never	Fixed	100.000	11162	0	0
13	campaign	Continuous	136	74	None	Never	Fixed	100.000	11162	0	0
14	pdays	Continuous	149	27	None	Never	Fixed	100.000	11162	0	0
15	previous	Continuous	63	57	None	Never	Fixed	100.000	11162	0	0
16	poutcome	Categorical				Never	Fixed	100.000	11162	0	0
17	deposii	Categorical			-	Never	Fixed	100.000	11162	0	0

# View Output: Analysis of [deposit]

#### ② Results for output field deposit

0— Comparing \$XF-deposit with deposit

'Partition'	1_TLaining		2_Testing	
Correct	6,918	88.81%	2,857	84.73%
Wrong	872	11.19%	515	15.27%
Total	7,790		3 372	

### View Model: deposit

Auto Classifier O

#### Auto Classifier - Models O

Models

T.OR GET: DEPOSIT

USE	MODEL NAME	ESTIMATOR Y	BUILD TIME (MINS)	DCI. FIELDS USED	ACCURACY	ACCUMULATED ACCURACY	AREA UNDER CER¥T	ACCUMULATED AUC	RECALL	PRECISION	ACTI
~	Random Trees 1	Ranrlom Trees	1	14	83.096	83.096	0.893	0.893	0.860	0.800	ť
<b>✓</b>	Logistic regression 1	Nominal Regreseion	<1	14	80.H2	80.042	0.885	0.88J	0.765	0.80N	Ī
<b>~</b>	C.S 1	C10	<1	13	85.024	85.024	0.897	0.897	0.875	0.819	Ī
~	Bayesian Network	BayesNet	<1	14	78.529	78.529	0.835	0.835	0.705	0.819	

## View Model: deposit

Auto ClassifierO

Auto Classifier - Models O

Models

T.4 R G E T : D E P O SI T

USE	MODEL NAME	ESTOFATOR P	BUILD TIME (MINS)	NO. FIELDS USED	ACCURACY	ACCUMULATED ACCURACY	AREA UNDER CURVE	ACCUMULATED AUC	RECALL	PRECISION
<b>✓</b>	XGBoost Tree 1	XGBoost Binary Classificahon Model	1	14	83.482	83.482	0.906	0.906	0.846	0.813
<b>~</b>	Kandom Trees 1	Random Trees	1	14	53.096	83.096	0.893	0.893	0.860	0.800
re <u>eressio</u>	Login <mark>√</mark> <u>u</u> 1	Nominal Recression	<1	14	50.042	80.042	0.885	0.885	0.765	0.805
<b>~</b>	C5 1	C?.0	<1	13	85.0 4	85.024	0.897	0.897	0.878	0.819

