Software Requirement Specification: SAC Classification Scenario

A Global Company

Created By: **Anubhav Oberoy**
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User Persona:

Tony Hafner is **Data scientist** working with Anubhav Trainings. He has vast experience in working with machine learning models with all kinds of scenarios. In 2011, he led the development of Stanford University's main Machine Learning Platform Learning and also taught an online Machine Learning class to over 100s of the students, thus helping not just himself but the community. He has been active contributors to all ML and AI based forums.

Hafner also works on machine learning, with an emphasis on deep learning. He had founded and led the "ATS Smart Insight SAC" project, which developed massive-scale deep learning algorithms. This resulted in the growth of the company he worked for, in his achievements one of the achievements was an algorithm developed on internet which a massive neural network with 1 billion parameters learned from unlabeled Google Ads traffic to help SEO experts optimizing their keyword targeting.

Job Functions:

- Identifying the data-analytics problems that offer the greatest opportunities to the organization
- Determining the correct data sets and variables
- Collecting large sets of structured and unstructured data from disparate sources
- Cleaning and validating the data to ensure accuracy, completeness, and uniformity
- Devising and applying models and algorithms to mine the stores of big data
- Analyzing the data to identify patterns and trends
- Interpreting the data to discover solutions and opportunities
- Communicating findings to stakeholders using visualization and other means

The Business Story

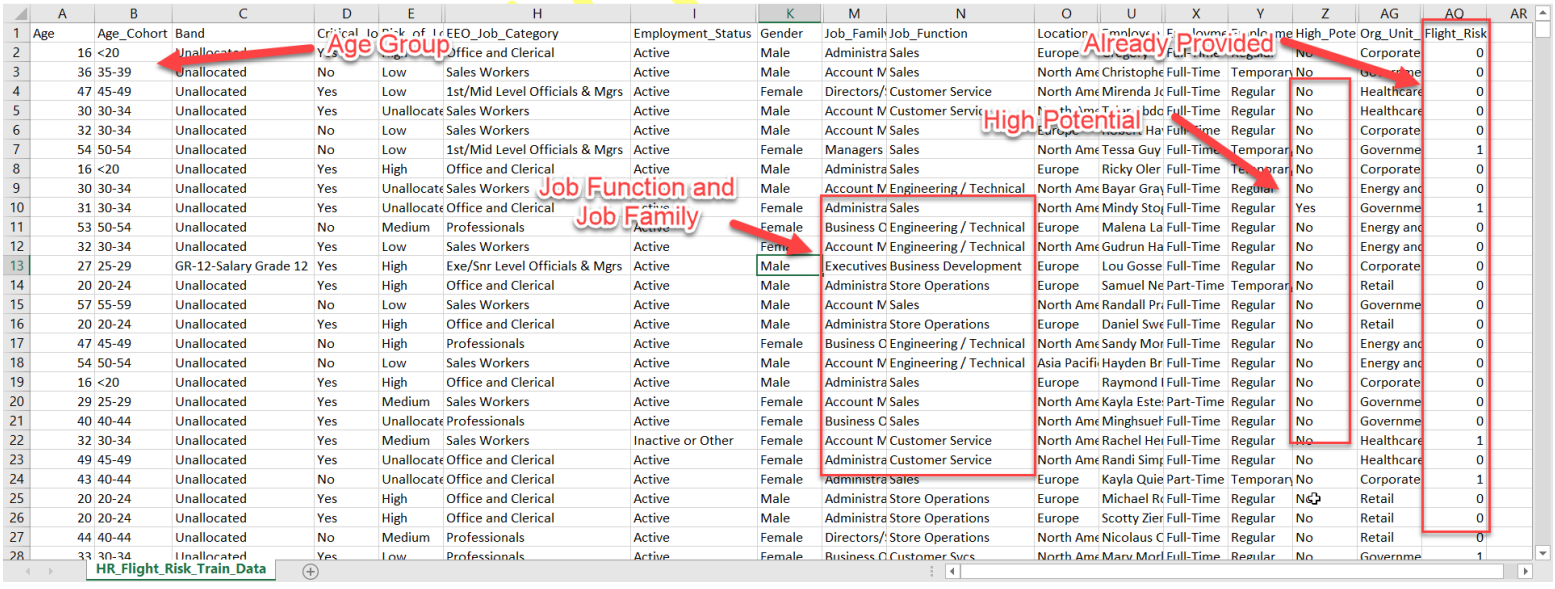
In today's digital age, the competition for high performing employees is greater than ever, and the costs associated with losing and replacing talent can be quite expensive. Organizations are looking to improve employee satisfaction to maintain loyalty, and reduce costs spent on recruiting and training new employees. To achieve this, organizations must take a proactive approach to human resources, instead of a reactive one.

Tony will review how an organization would typically review HR related KPIs, and understand how SAP Analytics Cloud Predictive features could influence proactive employee retention. If HR has to contact all the employees considering all of them will leave the company, it will cause huge cost overhead on the company and create panic, the idea is to help HR department to detect potentially high risk employee which are at high risk. Last year the company's attrition rate was **10.625 %**

Tony would use SAC predictive scenario to help HR department meeting their goals. The goals of the HR department are:
− Improve employee satisfaction to reduce resignations
− Reduce cost of training and ramp-up of new employees, and
− Hire better talent.

Objectives with Smart Predict are in this use case are:
1. Understand reasons for disaffection
2. Act on these reasons proactively to avoid losing employees
3. Identify which employees might potentially leave the organization

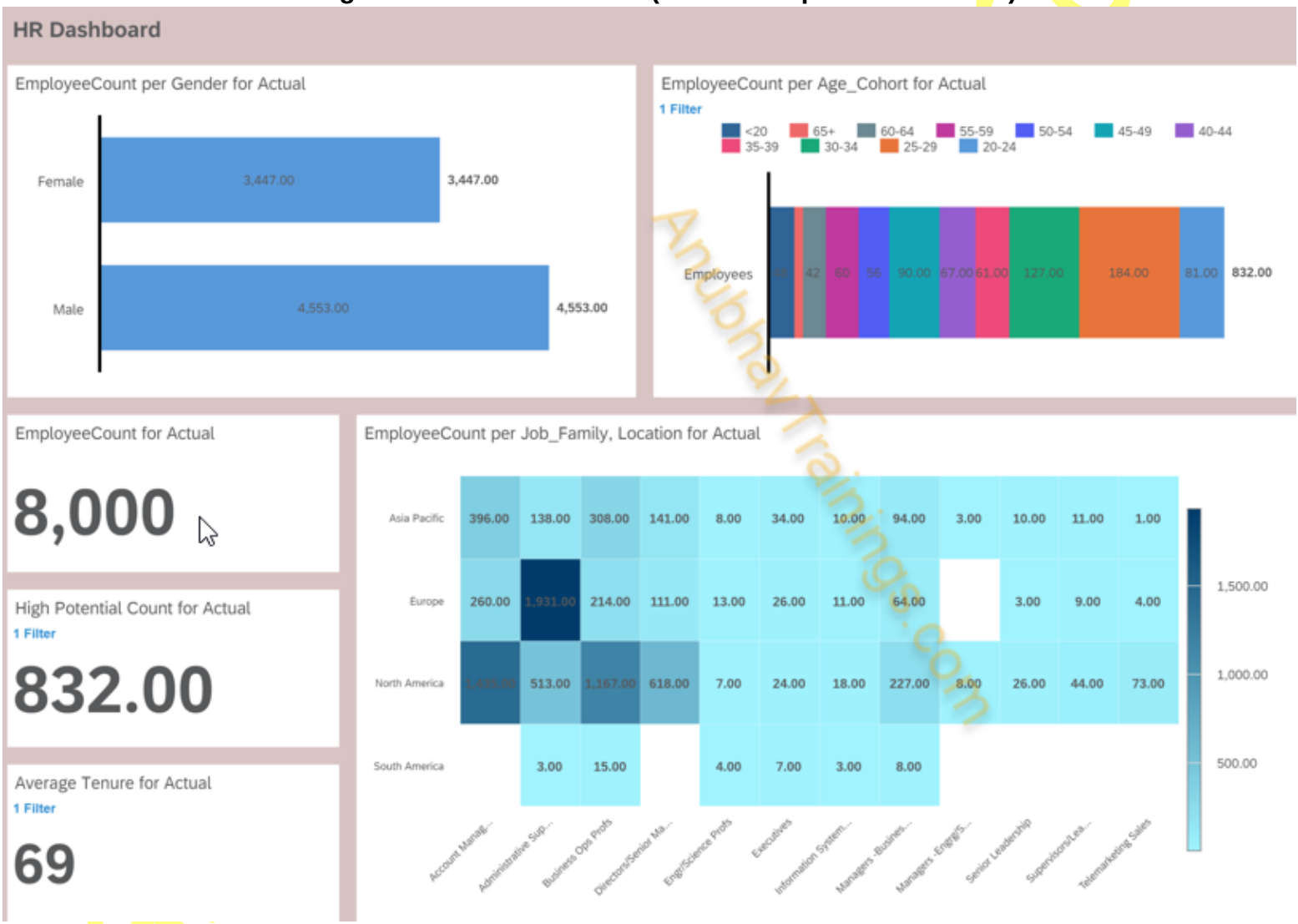
Below is the screenshot of all the employee flight(already resigned from company) data provided by HR department



	A	B	C	D	E	H	I	K	M	N	O	U	X	Y	Z	AG	AQ	AR
1	Age	Age_Cohort	Band	Critical_Jo	Risk_of_L	EEO_Job_Category	Employment_Status	Gender	Job_Family	Job_Function	Location	Employe	E	loyme	High_Pote	Org_Unit	Flight_Risk	
2	16	<20	Unallocated	Yes	High	Office and Clerical	Active	Male	Administra	Sales	Europe		Full-Time	Temporar	No	Corporate	0	
3	36	35-39	Unallocated	No	Low	Sales Workers	Active	Male	Account M	Sales	North Ame	Christophe	Full-Time	Temporar	No	Governme	0	
4	47	45-49	Unallocated	Yes	Low	1st/Mid Level Officials & Mgrs	Active	Female	Directors/	Customer Service	North Ame	Mirenda Jo	Full-Time	Regular	No	Healthcare	0	
5	30	30-34	Unallocated	Yes	Unallocate	Sales Workers	Active	Male	Account M	Customer Servic	North Ame	Tajbdo	Full-Time	Regular	No	Healthcare	0	
6	32	30-34	Unallocated	No	Low	Sales Workers	Active	Male	Account M	Sales	Europe	Hai	Full-Time	Regular	No	Corporate	0	
7	54	50-54	Unallocated	No	Low	1st/Mid Level Officials & Mgrs	Active	Female	Managers	Sales	North Ame	Tessa Guy	Full-Time	Temporar	No	Governme	1	
8	16	<20	Unallocated	Yes	High	Office and Clerical	Active	Male	Administra	Sales	Europe	Ricky Oler	Full-Time	Temporar	No	Corporate	0	
9	30	30-34	Unallocated	Yes	Unallocate	Sales Workers	Active	Male	Account M	Engineering / Technical	North Ame	Bayar Gra	Full-Time	Regular	No	Energy and	0	
10	31	30-34	Unallocated	Yes	Unallocate	Office and Clerical	Active	Female	Administra	Sales	North Ame	Mindy Sto	Full-Time	Regular	Yes	Governme	1	
11	53	50-54	Unallocated	No	Medium	Professionals	Active	Female	Business C	Engineering / Technical	Europe	Malena La	Full-Time	Regular	No	Energy and	0	
12	32	30-34	Unallocated	Yes	Low	Sales Workers	Active	Fema	Account M	Engineering / Technical	North Ame	Gudrun Ha	Full-Time	Regular	No	Energy and	0	
13	27	25-29	GR-12-Salary Grade 12	Yes	High	Exe/Snr Level Officials & Mgrs	Active	Male	Executives	Business Development	Europe	Lou Gosse	Full-Time	Regular	No	Corporate	0	
14	20	20-24	Unallocated	Yes	High	Office and Clerical	Active	Male	Administra	Store Operations	Europe	Samuel Ne	Part-Time	Temporar	No	Retail	0	
15	57	55-59	Unallocated	No	Low	Sales Workers	Active	Male	Account M	Sales	North Ame	Randall Pr	Full-Time	Regular	No	Governme	0	
16	20	20-24	Unallocated	Yes	High	Office and Clerical	Active	Male	Administra	Store Operations	Europe	Daniel Swe	Full-Time	Regular	No	Retail	0	
17	47	45-49	Unallocated	No	High	Professionals	Active	Female	Business C	Engineering / Technical	North Ame	Sandy Mor	Full-Time	Regular	No	Energy and	0	
18	54	50-54	Unallocated	No	Low	Sales Workers	Active	Male	Account M	Engineering / Technical	Asia Pacifi	Hayden Br	Full-Time	Regular	No	Energy and	0	
19	16	<20	Unallocated	Yes	High	Office and Clerical	Active	Male	Administra	Sales	Europe	Raymond I	Full-Time	Regular	No	Corporate	0	
20	29	25-29	Unallocated	Yes	Medium	Sales Workers	Active	Female	Account M	Sales	North Ame	Kayla Este	Part-Time	Regular	No	Governme	0	
21	40	40-44	Unallocated	Yes	Unallocate	Professionals	Active	Female	Business C	Sales	North Ame	Minghsuel	Full-Time	Regular	No	Governme	0	
22	32	30-34	Unallocated	Yes	Medium	Sales Workers	Inactive or Other	Female	Account M	Customer Service	North Ame	Rachel Hei	Full-Time	Regular	No	Healthcare	1	
23	49	45-49	Unallocated	Yes	Unallocate	Office and Clerical	Active	Female	Administra	Customer Service	North Ame	Randi Sim	Full-Time	Regular	No	Healthcare	0	
24	43	40-44	Unallocated	No	Unallocate	Office and Clerical	Active	Female	Administra	Sales	Europe	Kayla Quie	Part-Time	Temporar	No	Corporate	1	
25	20	20-24	Unallocated	Yes	High	Office and Clerical	Active	Male	Administra	Store Operations	Europe	Michael Re	Full-Time	Regular	No	Retail	0	
26	20	20-24	Unallocated	Yes	High	Office and Clerical	Active	Male	Administra	Store Operations	Europe	Scotty Zier	Full-Time	Regular	No	Retail	0	
27	44	40-44	Unallocated	No	Medium	Professionals	Active	Female	Directors/	Store Operations	North Ame	Nicolaus C	Full-Time	Regular	No	Retail	0	
28	33	30-34	Unallocated	Yes	Low	Professionals	Active	Female	Business C	Customer Svcs	North Ame	Mary Mor	Full-Time	Regular	No	Governme	1	

On the HR dashboard you can see KPIs that your organization regularly tracks, including total number of employees, total number of early talents, as well as the average tenure of your employees. Diversity presents a quite good balance between males and females in the organization. The heat map shows information about high potential. Interesting information about high potential employees on the dashboard: It appears that 184 high potential employees are between 25 – 29 years of age. In addition to this, many high potentials are in Account Manager (Sales) roles. As a business analyst, you generally interested in how you can help to improve HR policies. You understand that the goals of the HR department are to reduce costs and hire better talent.

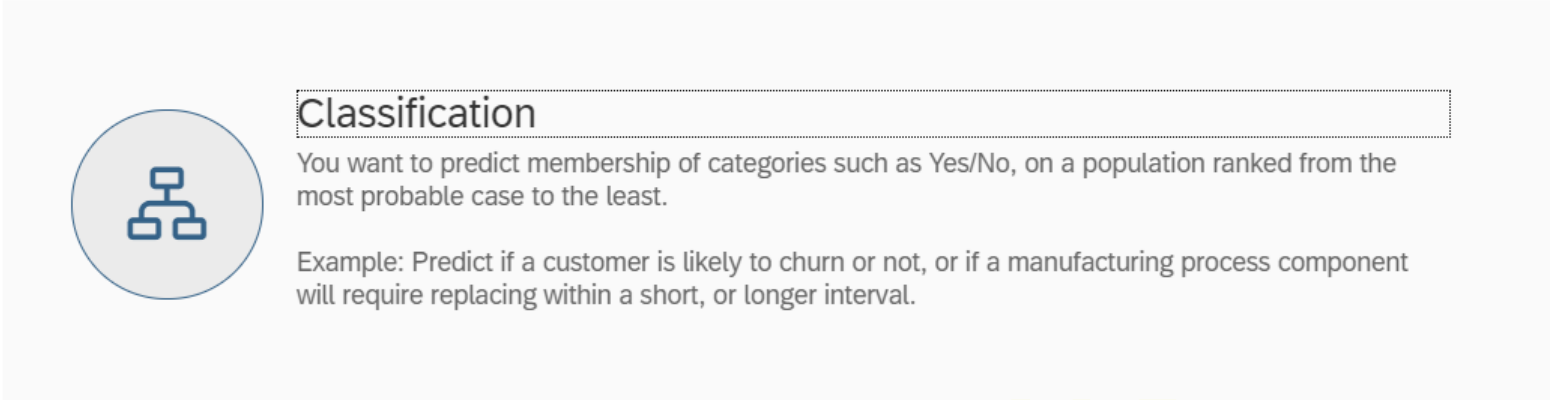
Existing HR Dashboard in SAC (covered in premium course)



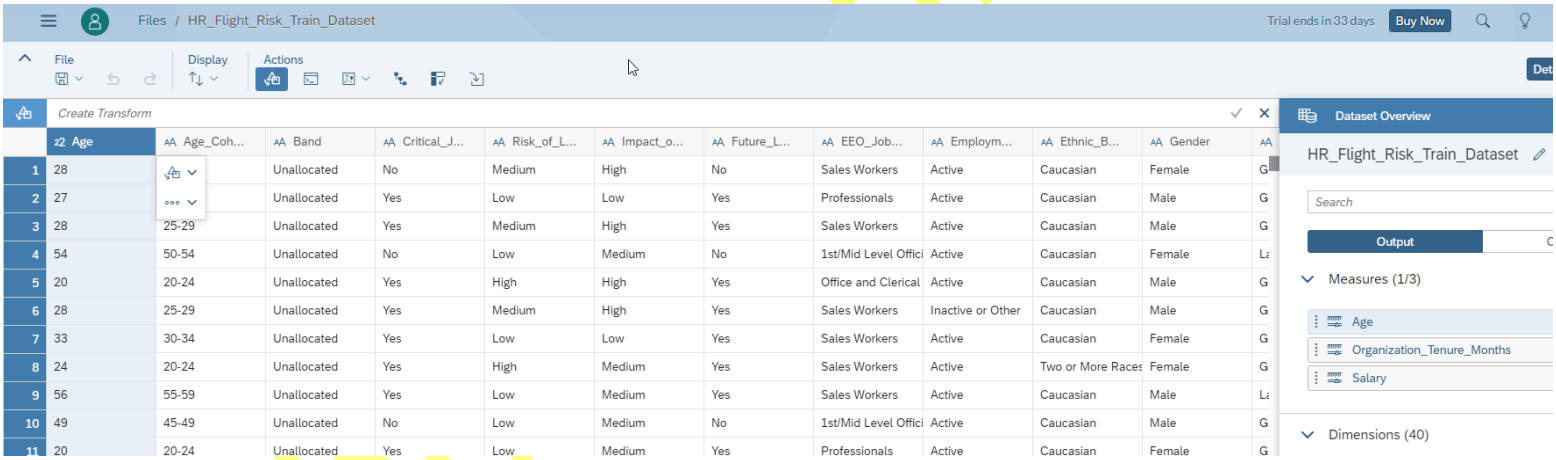
Upon importing HR data into SAP Analytics Cloud, Tony supposed to create a training dataset, prepare dataset to train the model, Since the outcome is binominal/nominal, **Classification** would be the right choice of scenario to be used.

Requirement 1: Create the Training dataset

Requirement 2: Create Predictive Scenario

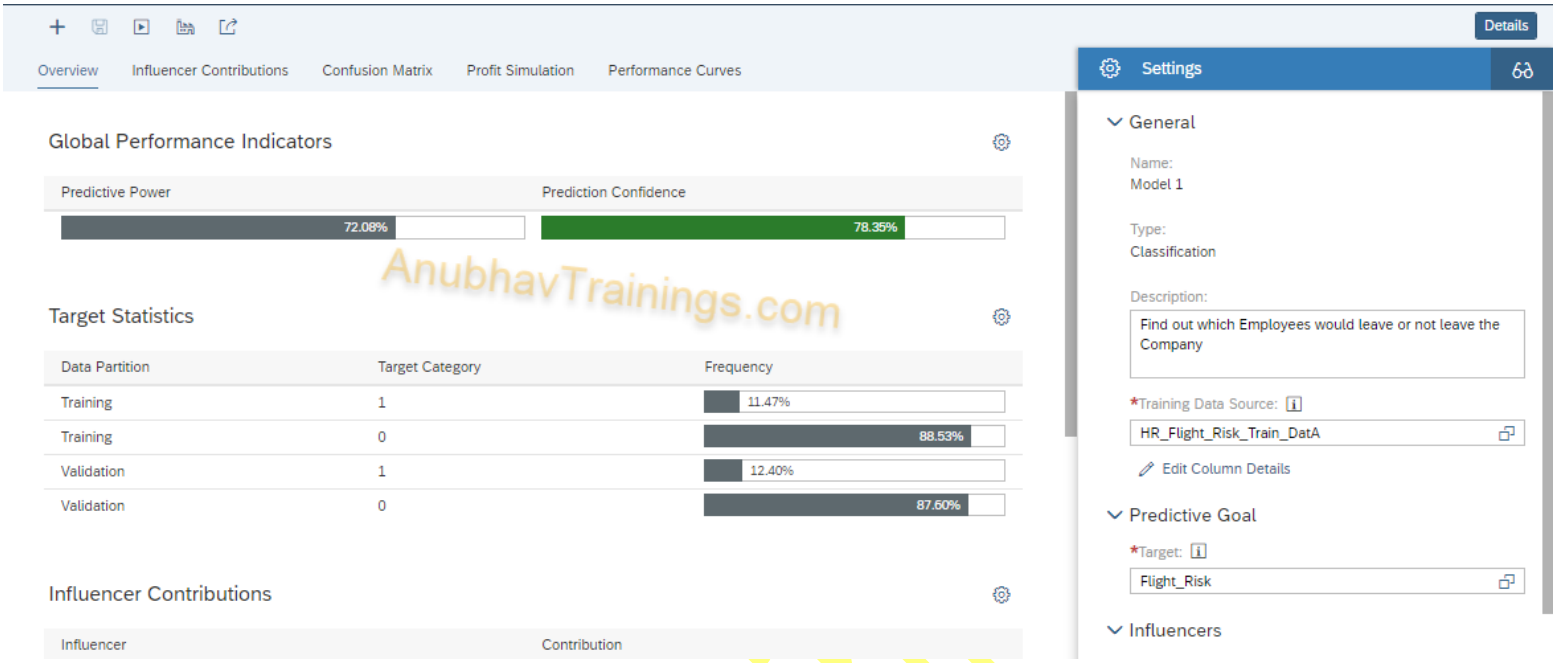


Requirement 3: Provide the Training dataset (result is known) with the Target variable name

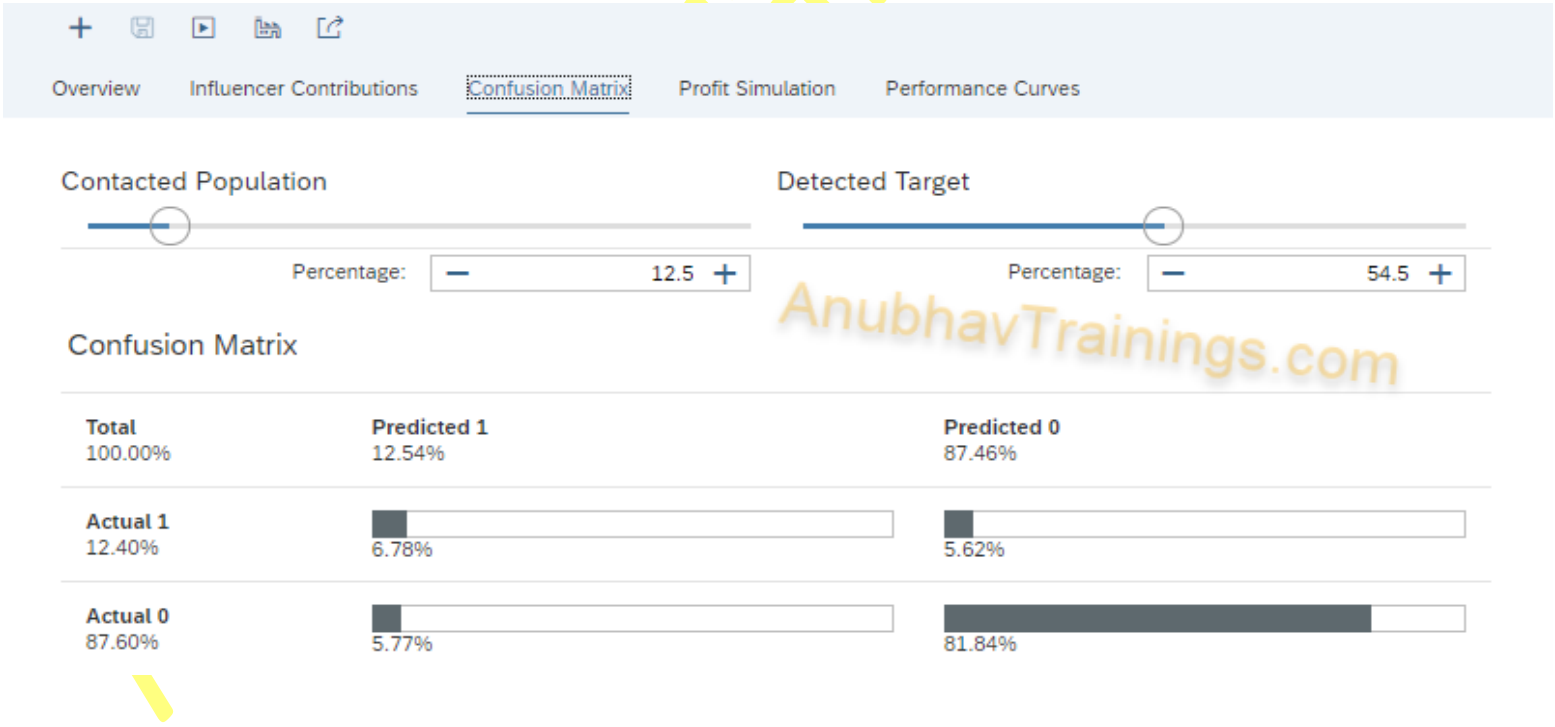


	Age	Age_Coh...	Band	Critical_J...	Risk_of_L...	Impact_o...	Future_L...	EEO_Job...	Employm...	Ethnic_B...	Gender
1	28		Unallocated	No	Medium	High	No	Sales Workers	Active	Caucasian	Female
2	27		Unallocated	Yes	Low	Low	Yes	Professionals	Active	Caucasian	Male
3	28	25-29	Unallocated	Yes	Medium	High	Yes	Sales Workers	Active	Caucasian	Male
4	54	50-54	Unallocated	No	Low	Medium	No	1st/Mid Level Offici	Active	Caucasian	Female
5	20	20-24	Unallocated	Yes	High	High	Yes	Office and Clerical	Active	Caucasian	Male
6	28	25-29	Unallocated	Yes	Medium	High	Yes	Sales Workers	Inactive or Other	Caucasian	Male
7	33	30-34	Unallocated	Yes	Low	Low	Yes	Sales Workers	Active	Caucasian	Female
8	24	20-24	Unallocated	Yes	High	Medium	Yes	Sales Workers	Active	Two or More Races	Female
9	56	55-59	Unallocated	Yes	Low	Medium	Yes	Sales Workers	Active	Caucasian	Male
10	49	45-49	Unallocated	No	Low	Medium	No	1st/Mid Level Offici	Active	Caucasian	Male
11	20	20-24	Unallocated	Yes	Low	Medium	Yes	Professionals	Active	Caucasian	Female

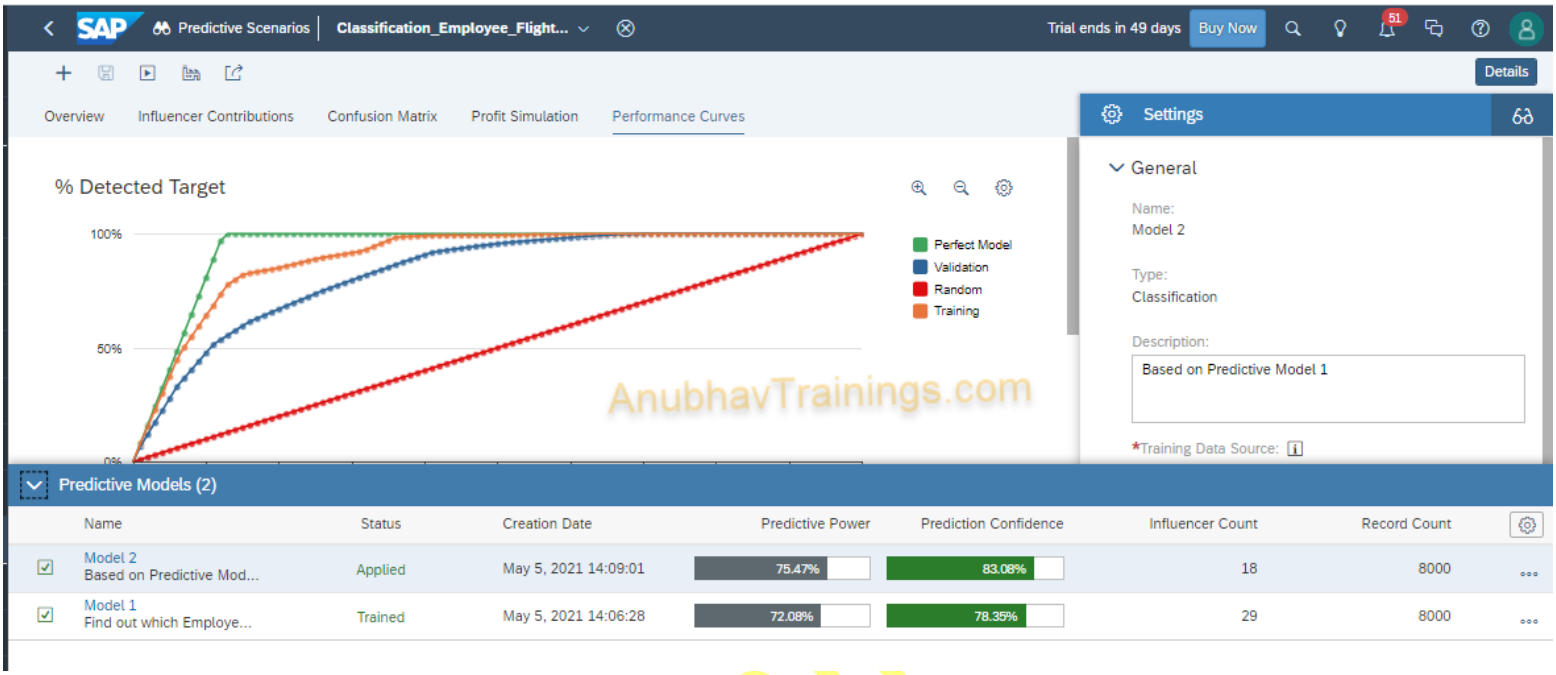
Requirement 4: Analyze the results as per the metrics shown by Anubhav for Classification.



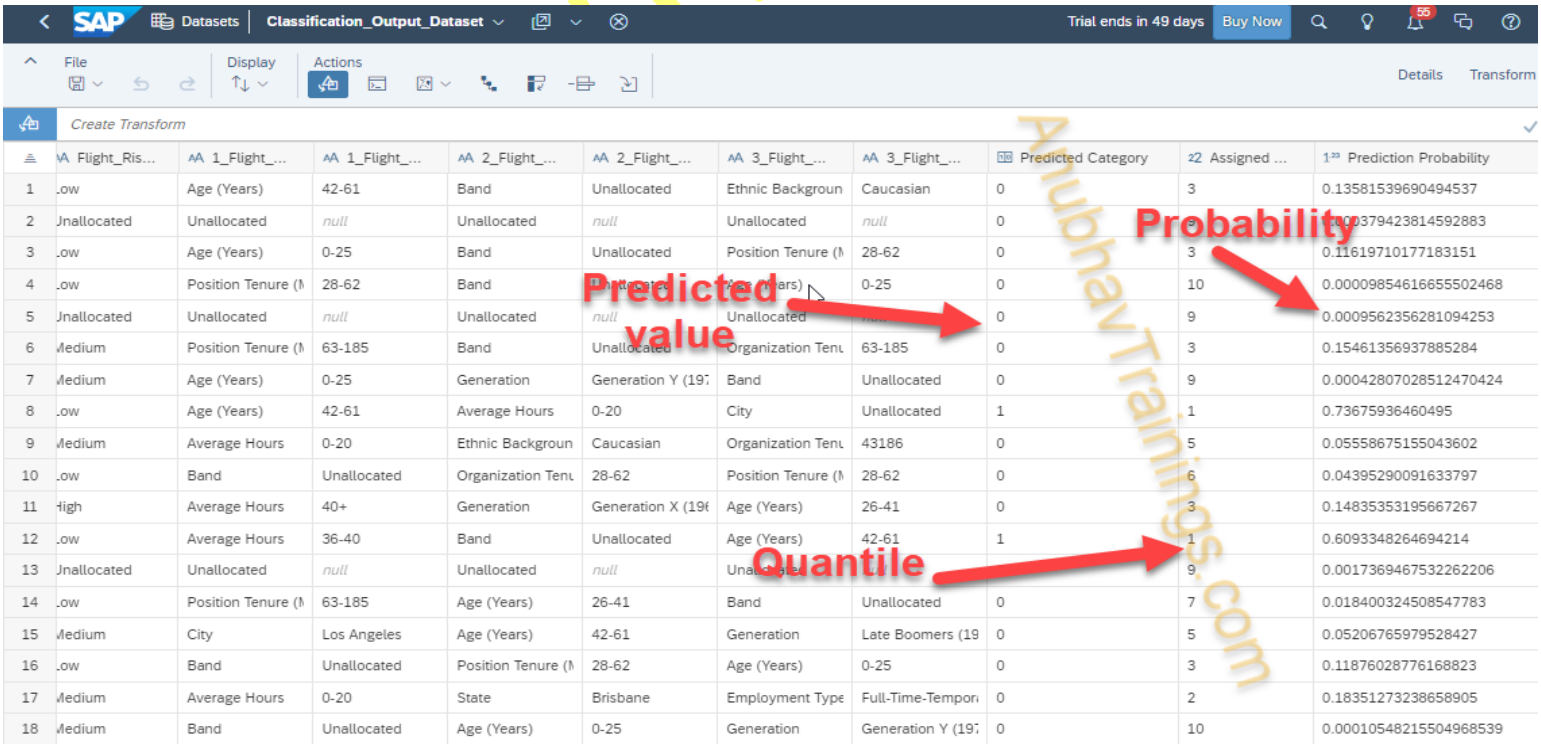
Requirement 5: Understand the Confusion Matrix and Profit Simulation.



Requirement 6: Apply the Model on application dataset to predict the flight risk of the employee.

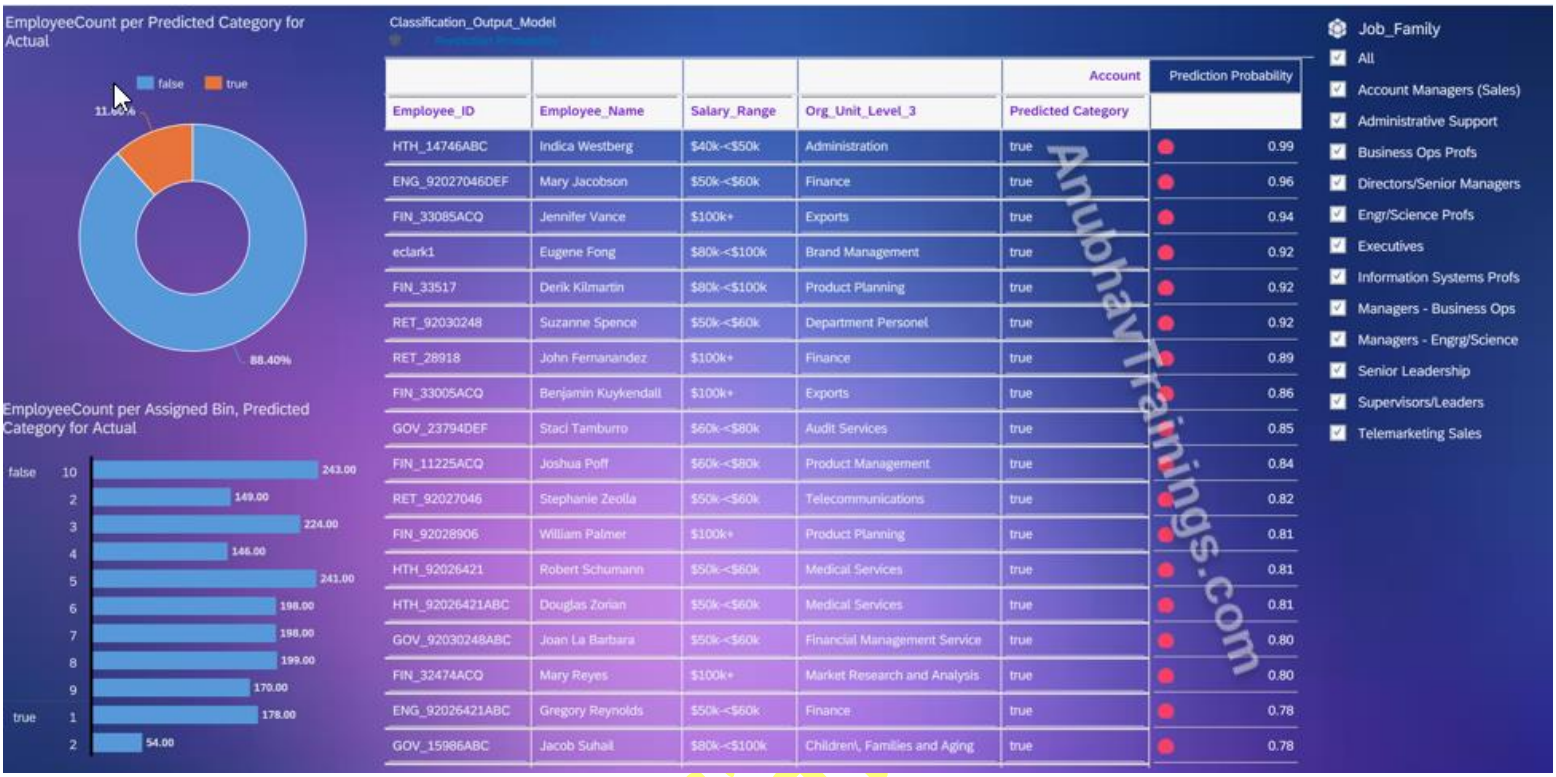


Requirement 7: Create a BI Model using the output dataset



	Flight_Ris...	1_Flight_...	1_Flight_...	2_Flight_...	2_Flight_...	3_Flight_...	3_Flight_...	Predicted Category	Assigned ...	Prediction Probability
1	Low	Age (Years)	42-61	Band	Unallocated	Ethnic Backgroun	Caucasian	0	3	0.13581539690494537
2	Unallocated	Unallocated	null	Unallocated	null	Unallocated	null	0	3	0.0003794238145928 83
3	Low	Age (Years)	0-25	Band	Unallocated	Position Tenure (M	28-62	0	3	0.11619710177183151
4	Low	Position Tenure (M	28-62	Band	[illegible]	[illegible] Years)	0-25	0	10	0.00009854616655502468
5	Unallocated	Unallocated	null	Unallocated	null	Unallocated	[illegible]	0	9	0.0009562356281094253
6	Medium	Position Tenure (M	63-185	Band	Unallocated	Organization Tenu	63-185	0	3	0.15461356937885284
7	Medium	Age (Years)	0-25	Generation	Generation Y (197	Band	Unallocated	0	9	0.00042807028512470424
8	Low	Age (Years)	42-61	Average Hours	0-20	City	Unallocated	1	1	0.73675936460495
9	Medium	Average Hours	0-20	Ethnic Backgroun	Caucasian	Organization Tenu	43186	0	5	0.05558675155043602
10	Low	Band	Unallocated	Organization Tenu	28-62	Position Tenure (M	28-62	0	6	0.04395290091633797
11	High	Average Hours	40+	Generation	Generation X (196	Age (Years)	26-41	0	3	0.14835353195667267
12	Low	Average Hours	36-40	Band	Unallocated	Age (Years)	42-61	1	1	0.6093348264694214
13	Unallocated	Unallocated	null	Unallocated	null	Unallocated	[illegible]	0	9	0.0017369467532262206
14	Low	Position Tenure (M	63-185	Age (Years)	26-41	Band	Unallocated	0	7	0.018400324508547783
15	Medium	City	Los Angeles	Age (Years)	42-61	Generation	Late Boomers (19	0	5	0.05206765979528427
16	Low	Band	Unallocated	Position Tenure (M	28-62	Age (Years)	0-25	0	3	0.11876028776168823
17	Medium	Average Hours	0-20	State	Brisbane	Employment Type	Full-Time-Tempor	0	2	0.18351273238658905
18	Medium	Band	Unallocated	Age (Years)	0-25	Generation	Generation Y (197	0	10	0.00010548215504968539

Requirement 8: Display the result in BI story by enhancing the HR dashboard



For detailed training on SAP Analytics cloud with such real time scenarios, feel free to get in touch with us on
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