

# American Express Campus Challenge 2025

## Amex Offerings Personalization



# Agenda

- Background of Campus Challenge
- Stages of Competition
  - Round1 - Crossword
  - Round2 – Amex Offerings Problem Statement
  - Round3 – Deck submission and Presentation
- Data Details
- Guidelines & Submission Format

# Background

## Let's see, what The American Express Campus Challenge 2025 is all about?

The **American Express Campus Challenge** is an analytics and data science-based competition for campus students. It's a platform to showcase your talent and compete with the best minds across India.

American Express India Centre of Excellence (CoE) is a two-decade-old establishment serving as an “analytical powerhouse” for American Express. Our Decision Science & Strategy teams across Risk, Fraud, and Marketing are the backbone of all data-driven decisions across the customer life cycle at American Express. How do you engage with a customer? Who should you target for a credit card? Should a card be approved or declined? How much credit should be extended to the customer? Is it really the customer making the transaction – or is it a fraudster? To solve these problems, we take advantage of the big-data ecosystem by leveraging our data suite and the next generation of AI and technology.

In this year’s competition, we are looking for innovative minds to express their proficiency in data analytics & formulate an decision science solution:

As a Data Modeler, apply data science and predictive modelling skills, learn on the way from the data, and try out new ideas to produce the most accurate prediction model for matches.

## What's in it for you?

Exciting **prizes** for the winners & top performers!

**\*Pre-Placement Interviews (PPIs)** for top performers!

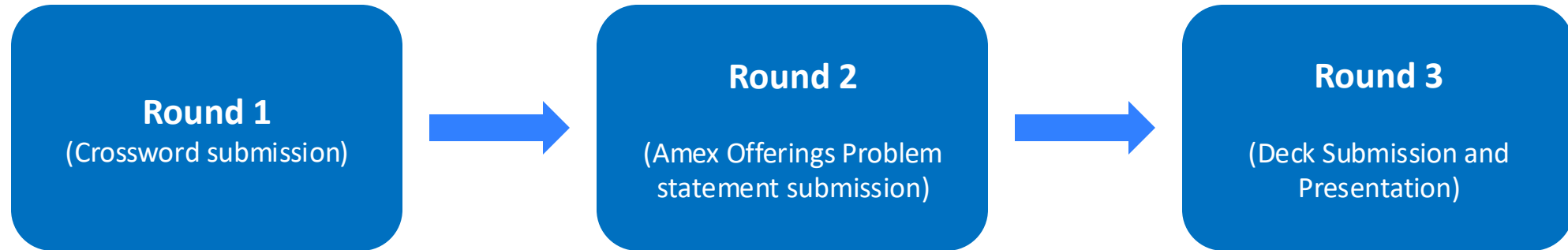
**Amex merchandise & participation certificates!**

*\* Disclaimer: Participation in challenge doesn't guarantee employment with Amex.*

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# Stages of Competition



# Round 1

**Crossword Puzzle** – Solve the crossword puzzle related to terminologies used in finance industry for marketing decision science & correctly guess the highlighted words in the crossword.

**Evaluation Process :**

Anyone guessing the right words, will get a password to unlock the next around. All the participants with correct word guesses will proceed for Round 2.

No cap on number of submissions for Round 1

# Round 2

# Problem Statement



- Prediction of probability to click for a customer for a given offerings on a particular day given that customer has seen the offerings.
- The end objective of this problem statement is to show the most relevant offers on the top ranks to increase customer's clicks and hence overall engagement with the offers.

# Digital offerings Ecosystem





# Sample Amex Offers

Offerings	Offerings Program Details
<div></div> <div>Offer 4</div>	<p>Get +5 Membership Rewards® points per eligible dollar spent. Up to 2,500 points</p> <p>Spend \$50 or more, get \$10 back</p> <p>Spend \$1,250 or more, get 2,500 Membership Rewards® points. Up to 3 times</p>
<div></div> <div>Offer 2</div>	<p>Earn 3 additional miles per dollar spent on purchases</p>
<div></div> <div>Offer 3</div>	<p>Get 10% back on purchases, up to \$5</p>

# Amex Offerings Placements – Amex Customer Login Portal

The screenshot shows the American Express Customer Login Portal. At the top, there's a navigation bar with 'Menu', 'AMERICAN EXPRESS', and links for 'Help' and 'Log Out'. Below this, a secondary navigation bar includes 'Home', 'Statements & Activity', 'Payments', 'Account Services', and 'Rewards & Benefits'. The main content area is divided into several sections: 1. Account Summary: Displays 'Statement Balance' of \$1,889, 'Your Payment is Due on July 19', and 'Total Balance' of \$2,350. It includes buttons for 'View Transactions' and 'Make Payment'. 2. Recent Transactions: A table listing transactions from June 25 to July 25, including DOORDASH, LONDON TANDOORI, GRUBS, NYCT RINGO, and UBER. 3. Membership Rewards: Shows 88,356 points and a button to 'Explore Rewards'. 4. Refer Friends: A section titled 'Refer Friends. Get Rewarded' with a 'Refer Now' button. 5. Amex Offers & Benefits: A section with tabs for 'Available (100)', 'Added to Card (0)', and 'Savings'. It includes a search bar and a list of offers, with Offer 2 being highlighted. 6. Useful Links: A sidebar with links like 'Check Credit Balance Refund', 'Recommended Cards For You', and 'Refer Friends, Earn Rewards'.

Statement Balance ⓘ  
\$1,889<sup>91</sup>  
May 25 - Jun 24  
[View Transactions](#)

Your Payment is Due on  
July 19  
Minimum Payment Due ⓘ \$40.00  
[Make Payment](#)

Total Balance ⓘ  
\$2,350<sup>95</sup>  
[Balance Details](#)  
No Prepaid Spending Limit ⓘ  
[Check Spending Power](#)

• Your next AutoPay payment will be made on Jul 05. [Manage AutoPay](#)

Recent Transactions (Since Jun 25, Closing Jul 25) [View All](#)

Place out your payments with Plan 6®. [Choose a Plan](#)

>	Jul 5	Pending	DOORDASH	\$24.30
>	Jul 5	Pending	LONDON TANDOORI	\$1.56
>	Jul 7	Pending	GRUBS	-\$30.42
>	Jul 7	Pending	GRUBS	\$30.42
>	Jul 7	Pending	NYCT RINGO	\$2.30
>	Jul 7	Pending	UBER	\$12.34
>	Jul 7	Pending	UBER EATS	-\$8.09

[PDF Return Statement](#)

Refer Friends. Get Rewarded

You can earn **10,000** Membership Rewards® points for each eligible referral – up to 100,000 Membership Rewards® points per calendar year.

[Refer Now](#)

Amex Offers & Benefits [View All](#) | [Map View](#)

Available (100) | Added to Card (0) | Savings

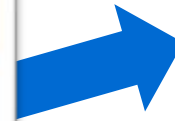
> Spend \$400 or more, get \$100 back  
EXPIRES 09/15/2024 [Add to Card](#)  
Offer 1

> Get 8% back on purchases, up to a total of \$250  
EXPIRES 09/01/2024 [Add to Card](#)  
Offer 2

> Get 10% back on purchases, up to a total of \$20  
EXPIRES 11/30/2024 [Add to Card](#)  
Offer 3

Useful Links

- Earn 35,000 Bonus Miles with a Delta SkyMiles® Reserve Card. Terms apply. [Explore Offer](#)
- [Check Credit Balance Refund](#)
- [Recommended Cards For You](#)
- [Replace a Lost or Damaged Card](#)
- [Dispute a Payment](#)
- [Add Additional Card Members](#)
- [Refer Friends, Earn Rewards](#)
- [Your FICO® Score and Insights](#)



This section provides a detailed view of the 'Amex Offers & Benefits' page. It features a search bar and three tabs: 'Available (100)', 'Added to Card (0)', and 'Savings'. Three offers are listed: 1. 'Spend \$400 or more, get \$100 back' (Offer 1), 2. 'Get 8% back on purchases, up to a total of \$250' (Offer 2), and 3. 'Get 10% back on purchases, up to a total of \$20' (Offer 3). Each offer includes an expiration date and an 'Add to Card' button.

Amex Offers & Benefits [View All](#) | [Map View](#)

Available (100) | Added to Card (0) | Savings

> Spend \$400 or more, get \$100 back  
EXPIRES 09/15/2024 [Add to Card](#)  
Offer 1

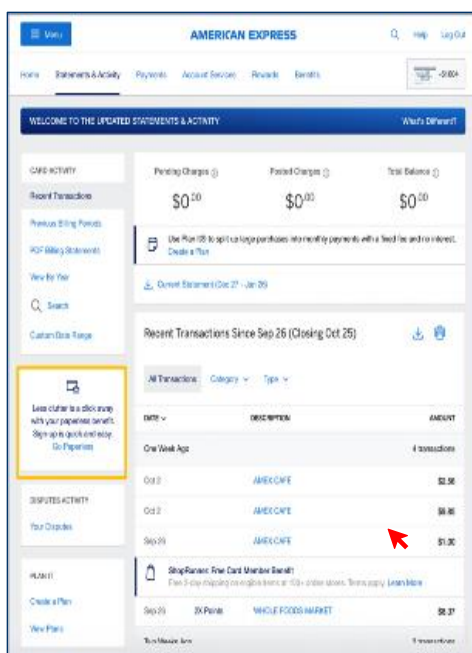
> Get 8% back on purchases, up to a total of \$250  
EXPIRES 09/01/2024 [Add to Card](#)  
Offer 2

> Get 10% back on purchases, up to a total of \$20  
EXPIRES 11/30/2024 [Add to Card](#)  
Offer 3

# Dependent Variable

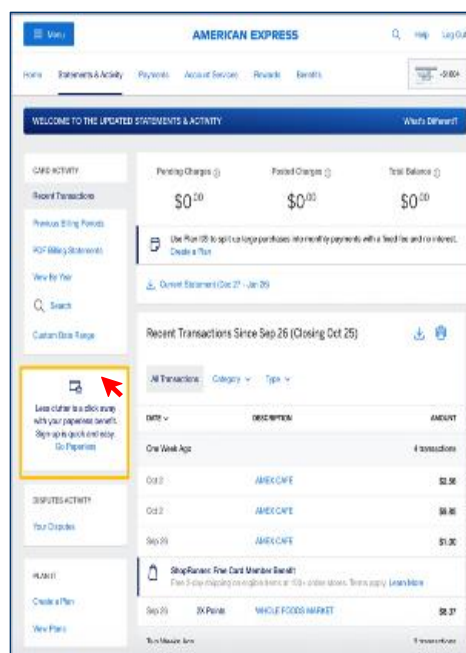
- Binary outcome takes 1 if a CM has clicked on an offerings and 0 otherwise, given that CM has seen that offerings

## Extension



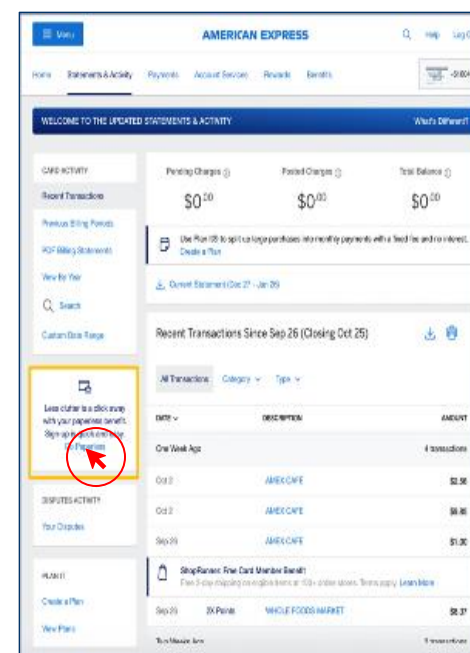
The placement and offerings was **successfully loaded** on the web page.

## Impression



CM scrolled over the defined area confirming the interest and **offerings seen**.

## Click



CM **clicked** on the call-to-action button confirming click conversion.

Dependent Variable Inputs => P(**Click** / **Impression**)

# Independent Variables: Categories

- We have a total of 366 features spread across different categories
- **Variable Names will be masked and No PII will be shared**



## Customer Profile and Card usage

- Product
- Spend patterns
- Tenure
- Payment behavior
- Location



## Offer/Treatment features

- Popularity
- Industry
- Duration and Expiry
- Metadata like Discount rate



## Customers Past interaction

- Interaction with same offer
- Browsing on Amex web/app
- Past interaction on similar offers



## Others

- Customer interaction with AXP cobrand partners
- Customer engagement with rewards

# Additional Dataset

- We will provide three additional dataset for engineered feature creation.

Events Data	
1	Customer ID (masked)
2	Offerings ID
3	Placement ID
4	Impression Timestamp
5	Click Timestamp

Transaction Data	
1	Customer ID (masked)
2	Transaction Amount
3	Product ID
4	Transaction Debit/Credit
5	Transaction Date
6	Time of Transaction
7	Industry Description
8	Industry Code

Offerings Data	
1	Offerings ID
2	Offerings Name
3	Redemption Frequency
4	<i>Discount Rate</i>
5	Offerings Body
6	Industry Name
7	Industry Code
8	Start Timestamp
9	End Timestamp



# Evaluation Criteria: MAP@7

- Mean Average Precision (MAP) is the measure of how well offers are being rank ordered. It assigns weight to the true positives (TP) basis their actual rank. For example, click correctly captured on rank 1 would have higher weight compared to rank 2
- MAP is Average Precision (AP) for each user, averaged over the entire population in the test dataset

## **File 1 (Public Leaderboard):**

- Final Score will be MAP calculated on out of time data

## **File 2 (Private Leaderboard):**

- Combined score of MAP on evaluation data of round 1 and round 2
- Approach

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# Data

Round	Theme	File Name	Desc	Location/Name
Round 1	Cross word	r1_data.xlsm	Fill the crossword related to credit industry based on hints shared	<i>To be downloaded from the unstop website (available to all registered candidates)</i>
Round 2	Amex Offerings Personalization Problem	train_data.parquet, test_data.parquet add_trans.parquet, add_event.parquet, offer_metadata.parquet, data_dictionary.csv	Fill the crossword related to credit industry based on hints shared	
Round 3	Presentation	To be submitted by participants	Present your solution to Amex leaders	

- Next round will only be unlocked after successfully solving current round – i.e., Round 2 will be unlocked after solving Round 1. Round 3 will be enabled after submission deadline of Round 2.

# Sample Data – Round 1

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
2														P2				
3									L3									
4									K4									
5																		
6																		
7																		
8																	S8	
9												N9						
10																		
11		D11			G11						M11		O11					
12	C12																	
13																		
14	C14																	
15																		
16																		
17																		
18																		
19											M19							

Across:

- L3 - Hint 1
- I6 - Hint 2
- N9 - Hint 3
- C12 - Hint 4
- C14 - Hint 5
- M19 - Hint 6

Down:

- P2 - Hint 1
- K4 - Hint 2
- I8 - Hint 3
- S8 - Hint 4
- D11 - Hint 5
- G11 - Hint 6
- M11 - Hint 7
- O11 - Hint 8

Unscramble the letters highlighted in yellow to get the password for the next round

S N S I U E B S → Letters highlighted in yellow

B U S I N E S S → Unscrambled word – to be used as password for Round 2

# Sample Data – Round 2

inp_key	cust_xref_id	offer_id	event_ts	eg	qfncsm_ct	avail_mile	flight_grp_ct	mile_type	amv_acct_in	elite_eff_dt	dil	actv_part_y_1	star_rt	grp_a_in	hltn_hgvc	tier_cd	promus_in	enroll_dt_diff	total_page_tin	acq_time_30	loy_time_30	estatement_tin	mr_time_30	oce_time_30	travel_time_30	prepaid_time	others_time_30
2559944_844	2559944	84457	21:21.1	0	43108	52219		5178	N	6921	Y																
2559944_568	2559944	568602	21:15.5	0	43108	52219		5178	N	6921	Y																
2559944_688	2559944	688996	21:21.7	0	43108	52219		5178	N	6921	Y																
2559944_881	2559944	88148	21:43.2	0	43108	52219		5178	N	6921	Y																
2559944_871	2559944	87164	21:18.3	0	43108	52219		5178	N	6921	Y																
2560794_320	2560794	32049	48:54.0	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_934	2560794	934612	48:00.1	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_844	2560794	84457	47:59.8	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_288	2560794	28868	46:25.0	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_224	2560794	224505	47:30.3	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_964	2560794	9641813	48:29.2	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_149	2560794	14967	46:19.3	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_287	2560794	28783	46:56.3	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_650	2560794	65044	48:19.7	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_822	2560794	82299	48:56.2	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_460	2560794	460845	48:02.9	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_236	2560794	23690	46:59.1	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_926	2560794	92636	48:51.0	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_379	2560794	379274	47:39.3	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_989	2560794	98922	48:46.7	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_691	2560794	6919527	48:11.7	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_688	2560794	688996	47:30.4	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_248	2560794	24840	45:57.6	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_576	2560794	57615	47:13.7	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_342	2560794	34229	48:35.5	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_902	2560794	90250	47:17.3	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_770	2560794	7706453	47:06.2	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_412	2560794	412448	48:13.2	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_807	2560794	807513	49:02.0	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_808	2560794	80836350	47:44.1	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_696	2560794	6965175	48:35.5	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_694	2560794	69405	47:39.2	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_348	2560794	34826	48:03.0	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_803	2560794	803982	48:54.1	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_605	2560794	605824	47:11.9	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_672	2560794	67220	46:42.8	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_230	2560794	2304	48:35.5	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	
2560794_659	2560794	65973	46:42.7	21	50978	127895	2	5753	Y	4303	Y	NN	F	D	S	P		3011	929470	609224	0	0	0		0	320246	



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# Round 1 Guidelines

- The words in the crossword are related to common terminologies used in Credit Card Industry and Data Science.
- Hints to fill the Crossword are provided in that sheet itself
- The cell in which hint cell number is mentioned is also part of the word
- All Cells highlighted in yellow color in Crossword needs to be unscrambled to get a word relevant to the Credit Card Industry
- Participants are required to download and follow exact templates of the submission files from Unstop website
- You will be asked to submit the unscrambled word as well as the completed crossword for evaluation in submission template and upload on the website in CSV format only
- The unscrambled word will also act as a password for Round 2
- Amex will thoroughly evaluate the solution to ensure integrity & guarding against any misuse or gaming

# Sample Submission File – Round 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1																														
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
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16																														
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21																														
22																														
23																														
24																														

Words can go across or down.

ACROSS

L3. hint.....

I6. hint.....

N9. hint.....

C12. hint.....

C14. hint.....

M19. hint.....

DOWN

P2. hint.....

K4. hint.....

I8. hint.....

S8. hint.....

D11. hint.....

G11. hint.....

M11. hint.....

O11. hint.....

Unscramble the letters highlighted in yellow to get the password for the next round

The submissions should follow the naming convention: *r1\_crossword\_<team-name>.xlsx*

# Round 2 Guidelines

- Please use the unscrambled word in uppercase from Round 1 as password for Round 2 which will enable you to participate in Round2
- Participants can use existing variables, create derived variables from existing ones and use them in their decision science solution
- Participants must not use identifier variables in their solution
- Participants are not allowed to add new rows or alter the shared data
- The created solution must be run on all unique\_identifiers
- Participants need to submit 1 file in Round 2 along with additional files
- Participants should try to create a decision science solution that is scalable in real world, keeping in mind the evaluation criteria
- Participants are required to download and follow exact templates of the submission files from Unstop website
- Max submissions allowed per team in Round 2 for File 1 are 20, leaderboard would be public basis submission of File and team would be rank ordered basis max final score attained
- Amex will be thoroughly evaluating all solutions to ensure integrity & guarding against any misuse or gaming

# Sample Submission File 1 & File 2 – Round 2

A	B	C	D	E
inp_key	pred	cust_xref_id	offer_id	event_dt
2568822_404258283_16-23_2023-11-30 16:33:14.506	0.0077052	2568822	404258283	30/11/23
2568822_78680_16-23_2023-11-30 16:33:16.120	0.00728853	2568822	78680	30/11/23
2568822_55423_16-23_2023-11-30 16:33:22.136	0.00726084	2568822	55423	30/11/23
2568822_146933_16-23_2023-11-30 16:33:29.505	0.00726084	2568822	146933	30/11/23
2568822_69876_16-23_2023-11-30 16:33:14.361	0.01136965	2568822	69876	30/11/23
2568822_934612_16-23_2023-11-30 16:33:09.344	0.00830138	2568822	934612	30/11/23
2568822_23311_16-23_2023-11-30 16:33:22.394	0.01434342	2568822	23311	30/11/23
2568822_6275451_16-23_2023-11-30 16:33:00.440	0.00768096	2568822	6275451	30/11/23
2568822_92870_16-23_2023-11-30 16:33:03.109	0.01217039	2568822	92870	30/11/23
2568822_57941_16-23_2023-11-30 16:33:24.620	0.00751961	2568822	57941	30/11/23
2568822_65019_16-23_2023-11-30 16:33:26.580	0.00993808	2568822	65019	30/11/23
2568822_90984_16-23_2023-11-30 16:33:11.041	0.0076992	2568822	90984	30/11/23
2568822_6965175_16-23_2023-11-30 16:33:29.475	0.0077052	2568822	6965175	30/11/23
2568822_26030_16-23_2023-11-30 16:33:29.066	0.01023426	2568822	26030	30/11/23
2568720_29970_16-23_2023-11-29 11:55:47.461	0.00563324	2568720	29970	29/11/23
2568720_69217_16-23_2023-11-17 09:15:41.101	0.01838794	2568720	69217	17/11/23
2568720_104246_16-23_2023-11-17 10:41:45.847	0.01464711	2568720	104246	17/11/23
2568720_923960_16-23_2023-11-17 09:15:42.288	0.01094409	2568720	923960	17/11/23
2568720_65044_16-23_2023-11-17 09:15:41.076	0.01097822	2568720	65044	17/11/23
2568720_654444_16-23_2023-11-29 11:56:49.881	0.00555693	2568720	654444	29/11/23

The submissions should follow the naming convention: ***r2\_submission\_file\_1<team-name>.csv***

*We will provide details about submission format of additional files related to variables on Unstop.*



# Final Round Guidelines

- Top teams with combined evaluation score across Round 1, Round 2 and who qualify Amex sanity checks, will be shortlisted for the Final Round
- Shortlisted teams will also create a presentation detailing their approach including (but not limited to) Profiling technique, Feature Innovation, Intuitiveness, Selection, Framework used, Presentation, QnA etc. They will be asked to present the same to a panel

Top teams will be selected as winners based on Round 2 score as well as scores from the presentation



Thank You

All the Best for 2025

