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 submission)

→

Round 2

(Amex Offerings Problem statement submission)

→

Round 3

(Deck Submission and Presentation)
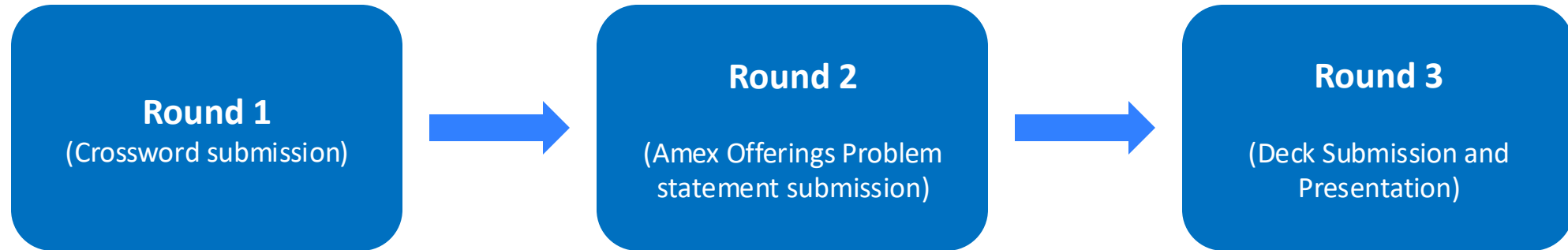
Round 1

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 key 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

Offer 4

Offer 3

Offer 1

Offer 2

- 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

Offer Set up and Eligibility → **Arbitration** → **Delivery**

Targeting based on Customer segments
- Customer profile
- CM product
- Geography
- Spend Behavior

Personalization decision engine which arbitrates across variety of content based on behavioral patterns to present the best offer

Personalization engine works across various channels and placements.
- Amex.com
- Mobile App
- Email

Sample Amex Offers

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

Amex Offerings Placements – Amex Customer Login Portal

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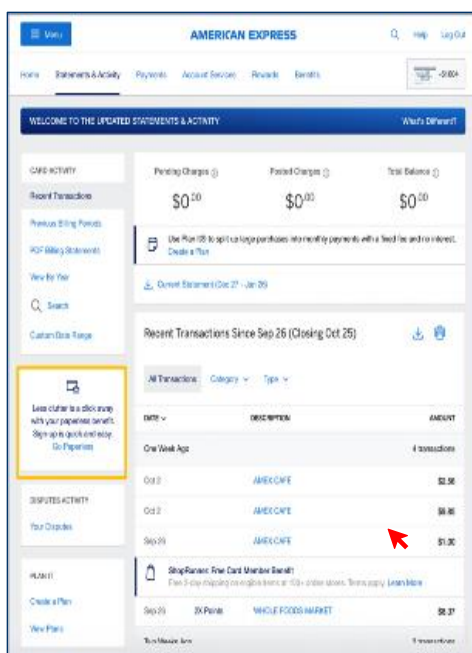
The placement and offerings was **successfully loaded** on the web page.

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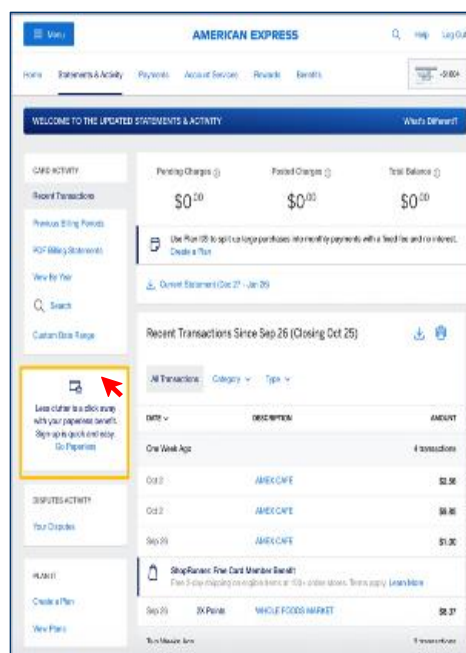
CM scrolled over the defined area confirming the interest and **offerings seen**.

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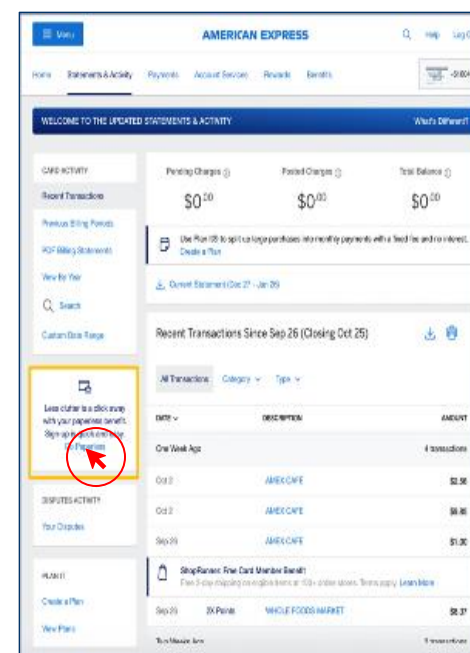
CM **clicked** on the call-to-action button confirming click conversion.

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 [Feature Name - Description]	
1	id2 - Customer ID (masked)
2	id3 - Offerings ID
3	id6 - Placement ID
4	id4 - Impression Timestamp
5	id7 - Click Timestamp

Transaction Data [Feature Name - Description]	
1	id2- Customer ID (masked)
2	f367 - Transaction Amount
3	f368 - Product ID
4	f369 - Transaction Debit/Credit
5	f370 - Transaction Date
6	f371 - Time of Transaction
7	f372 – Year-Month of Transaction
8	f374- Card Member Industry Description
9	id8 - Card Member Industry Code

Offerings Data [Feature Name - Description]	
1	id3 - Offerings ID
2	id 9 - Offerings Name
3	f375- Redemption Frequency
4	f376 - Discount Rate
5	f377 - Random
6	id10- Industry Code
7	id11 - Brand Name
8	f378 - Offerings Body
9	f374 -Card Member Industry Name
10	id8- Card Member Industry Code
11	id12 - Start Timestamp
12	id13 - 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	*To be downloaded from the unstop website (available to all registered candidates)*
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

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

id1	id2	id3	id4	id5	y	f1	f2	f3	f4	f5	f6	f7	f8	f9	f10	f11	f12	f13	f14	f15	f16
1366776_18	1366776	189706075	22:00.0	02/11/23	0	1									13	27					
1366776_89	1366776	89227	51:25.0	01/11/23	0	1									13	27					
1366776_35	1366776	35046	30:59.8	01/11/23	0	1									13	27					
1366776_62	1366776	6275451	21:32.3	02/11/23	0	1									13	27					
1366776_78	1366776	78053	21:34.8	02/11/23	0	1									13	27					
1366776_31	1366776	31794	21:32.3	02/11/23	0	1									13	27					
1366776_66	1366776	664919	51:25.0	01/11/23	0	1									13	27					
1366776_48	1366776	481197	21:46.4	02/11/23	0	1									13	27					
1366776_78	1366776	78680	21:04.0	02/11/23	0	1									13	27					
1366776_96	1366776	960643	22:55.3	02/11/23	0	1									13	27					
1366776_15	1366776	156722	22:55.2	02/11/23	0	1									13	27					
1366776_97	1366776	97081	21:47.6	02/11/23	0	1									13	27					
1366776_96	1366776	9641813	21:40.1	02/11/23	0	1									13	27					
1366776_81	1366776	81251	01:03.4	01/11/23	0	1									13	27					
1370198_47	1370198	475056	02:07.1	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_17	1370198	176404	00:56.6	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_90	1370198	90250	57:45.2	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_13	1370198	131332	01:34.8	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_16	1370198	169639	01:05.0	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_68	1370198	68777	01:17.3	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_87	1370198	875283	58:37.9	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_54	1370198	545624	01:54.1	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_26	1370198	26185	00:00.0	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_98	1370198	98922	59:41.1	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_37	1370198	3745802	57:20.0	01/11/23	1			27		37	39	44	54	47	33	42	27				
1370198_94	1370198	94904	58:26.0	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_32	1370198	32049	58:40.0	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_82	1370198	82165	01:17.7	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_96	1370198	9641813	59:16.0	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_23	1370198	2321	00:38.2	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_76	1370198	760457	01:35.6	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_85	1370198	851631	58:46.3	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_88	1370198	88935	00:34.4	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_86	1370198	863134	01:25.6	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_48	1370198	486352	01:41.7	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_76	1370198	762903	59:54.1	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_78	1370198	783808	01:47.6	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_51	1370198	510539	00:24.6	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_67	1370198	67681	58:25.9	01/11/23	0			27		37	39	44	54	47	33	42	27				
1370198_69	1370198	6965175	00:35.5	01/11/23	0			27		37	39	44	54	47	33	42	27				

Variable Descriptions can be found out in data_dictionary.csv

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Round 1 Guidelines

➢ The words in the crossword are related to common terminologies used in Credit Card Industry

➢ 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 key for Round 2

➢ Amex will thoroughly evaluate the solution to ensure integrity & guarding against any misuse or gaming

Sample Submission File – Round 1

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

➢ 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 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– Round 2

id1	id2	id3	id5	pred
1000061_31794_16-23_2023-11-05 09:47:54.852	1000061	31794	11/05/23	
1000061_16099_16-23_2023-11-05 09:28:11.514	1000061	16099	11/05/23	
1000061_72292_16-23_2023-11-05 09:28:07.697	1000061	72292	11/05/23	
1000061_27945_16-23_2023-11-05 09:28:04.157	1000061	27945	11/05/23	
1000061_944713_16-23_2023-11-05 09:28:12.529	1000061	944713	11/05/23	
1000061_1802_16-23_2023-11-05 09:47:54.545	1000061	1802	11/05/23	
1000061_86311_16-23_2023-11-05 09:28:12.883	1000061	86311	11/05/23	
1000061_397163_16-23_2023-11-05 09:28:08.489	1000061	397163	11/05/23	
1000061_23690_16-23_2023-11-05 09:11:36.193	1000061	23690	11/05/23	
1000061_403431_16-23_2023-11-05 09:28:10.592	1000061	403431	11/05/23	
1000061_25086_16-23_2023-11-05 09:28:07.945	1000061	25086	11/05/23	
1000061_80107221_16-23_2023-11-05 09:28:12.577	1000061	80107221	11/05/23	
1000061_393281_16-23_2023-11-05 09:28:11.331	1000061	393281	11/05/23	
1000061_77575_16-23_2023-11-05 09:28:11.641	1000061	77575	11/05/23	
1000061_70913_16-23_2023-11-05 09:47:53.072	1000061	70913	11/05/23	
1000061_97904824_16-23_2023-11-05 09:28:08.601	1000061	97904824	11/05/23	
1000061_803982_16-23_2023-11-05 09:47:52.857	1000061	803982	11/05/23	
1000061_187169_16-23_2023-11-05 09:28:11.783	1000061	187169	11/05/23	
1000061_32049_16-23_2023-11-05 09:28:13.074	1000061	32049	11/05/23	
1000061_825294_16-23_2023-11-05 09:47:55.012	1000061	825294	11/05/23	
1000061_430736_16-23_2023-11-05 09:28:12.807	1000061	430736	11/05/23	
1000061_62395_16-23_2023-11-05 09:28:07.805	1000061	62395	11/05/23	
1000061_97081_16-23_2023-11-05 09:28:08.795	1000061	97081	11/05/23	
1000061_9914_16-23_2023-11-05 09:11:35.557	1000061	9914	11/05/23	
1000061_5420674_16-23_2023-11-05 09:28:04.153	1000061	5420674	11/05/23	
1000061_522188_16-23_2023-11-05 09:11:37.242	1000061	522188	11/05/23	
1000131_415582_16-23_2023-11-04 04:37:48.889	1000131	415582	11/04/23	
1000131_67681_16-23_2023-11-04 04:37:49.057	1000131	67681	11/04/23	
1000131_74649_16-23_2023-11-04 04:37:41.911	1000131	74649	11/04/23	
1000133_379274_16-23_2023-11-05 23:29:25.507	1000133	379274	11/05/23	
1000164_176404_16-23_2023-11-04 01:05:41.026	1000164	176404	11/04/23	
1000164_96323854_16-23_2023-11-04 01:02:18.122	1000164	96323854	11/04/23	
1000164_78680_16-23_2023-11-04 01:02:59.391	1000164	78680	11/04/23	
1000164_688083_16-23_2023-11-04 01:04:39.000912	1000164	688083	11/04/23	
1000164_29416_16-23_2023-11-04 01:04:17.570	1000164	29416	11/04/23	

The submissions should follow the naming convention: *r2_submission_file<team-name>.csv*

Final Round Guidelines

➢ Top teams with evaluation score in 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 🎉