

Wells Fargo Campus Analytics Challenge Official Rules

PLEASE READ CAREFULLY—THESE OFFICIAL RULES ADDRESS YOUR LEGAL RIGHTS

THIS IS A JUDGED CHALLENGE. NO ENTRY FEE OR PURCHASE IS REQUIRED TO PARTICIPATE. YOU MUST ENTER THIS CONTEST WHILE IN THE UNITED STATES.

1. **Overview:** At Wells Fargo, our data scientists play a key role in driving innovative and meaningful insights that enable our lines of business to provide a world-class experience to our stakeholders. The Campus Analytics Challenge 2021 (“Challenge”) puts you in the role of a data scientist and calls you to develop a machine learning model. The dataset is small enough that you should be able to work with it on a standard laptop.

To help get your creative juices flowing, we encourage you to explore machine learning research literature and beyond, as you may find a creative approach in other sub-fields of machine learning.

2. **Challenge Schedule:** Challenge runs according to the schedule below on <https://www.mindsumo.com/contests/campus-analytics-challenge-2021> (the “Challenge Website”).

Challenge Starts	12:00:01 p.m. Eastern Time (“ET”) on 09/13/2021
Challenge Submission Deadline	12:00:01 p.m. ET on 10/13/2021
Submissions Judged	10/14/2021 – 11/04/2021
Potential Finalists and Winners Notified (winning subject to verification)	11/09/2021 (on or about)

3. **Eligibility:** This Challenge is sponsored by Wells Fargo Bank, N.A. (“Sponsor” or “Wells Fargo”) for full-time or part-time students, 18 years of age or older at the time of entry, who are enrolled in any higher education degree program on campus or online at colleges or universities in the United States and District of Columbia, including students attending two- and four-year programs, technical and vocational schools, junior and community colleges, as well as graduate and professional education students (collectively “Students”). Employees of Wells Fargo or MindSumo, Inc. and their respective parents, divisions, affiliates, subsidiaries, their promotional or marketing agencies, government entities and public officials, and their immediate family members (parent, child, sibling and spouse) and persons living in the same households of each such employee (whether related or not) are not eligible. **To be eligible to receive any prize, potential winners must have a valid U.S. tax identification number and meet all the eligibility requirements at the time the prize is awarded.** Potential winners will be required to provide Sponsor with proof that they meet the eligibility requirements for this Challenge. Void where prohibited by law.
4. **The Challenge Background:** Banks are required to report suspected vulnerable (elder and dependent adult) financial exploitation. Today, much of this activity is limited to human interaction (bankers working with customers on the phone or in person), through which bankers may pick up queues, or red flags or customers self-reporting scams or financial abuse to their financial institution. Digital payments have a degree of reported fraud and claims, with the assumption that much more unreported losses occur, especially perpetrated against older adults (60 years of age or older). As digital payments continue to expand across all demographics, research shows that older adults are showing the biggest uptick in adoption during the 2020/21 period due to the pandemic. Currently, digital payment data is not analyzed specifically under the vulnerable (elder and dependent adult) financial exploitation lens. Banks are

required to report elder financial abuse but, unless a customer reports fraud and files a claim, financial abuse can go undetected and repeated fraud via digital payments can continue without the banks' knowledge. Without detection models, a large amount of fraud is left unreported by consumers and elder and vulnerable adult populations will be at greater risk of being targeted and losing savings to fraudulent payments.

Banks need better methods to help protect elder and vulnerable adults against fraud in the digital payments landscape. Predictive modeling may also be applied in some form to alert consumers and bankers in advance of a fraud attempt and potentially pre-empt certain transactions and monetary losses. As the older adult segment continues to adopt digital technology, including digital payments, banks need better ways to predict and analyze transaction data to detect high risk payment patterns or transaction attributes that signal high risk for fraud, especially for older and vulnerable adult customers, which could be targeted by scammers.

5. **Challenge Objective:** The Challenge is for you to develop a machine learning model to predict suspected elder fraud in the digital payments space as described in Rule 4. Your machine learning model ("Solution") must meet: (a) the Challenge Criteria, (b) follow the Challenge Instructions and Requirements, and (c) incorporate the Key Deliverables, each described in detail below.
6. **Challenge Criteria:** Build a classification model for predicting elder fraud in the digital payments space as described in Rule 4, which:
- a) handles missing variables
 - b) maximizes the F1 score,
 - c) uses the given data set,
 - d) includes suitable encoding schemes, and
 - e) has the least set of feature variables.

The dataset provided on the Challenge page is synthetic. Conditional GAN ("CTGAN") was used to generate the synthetic dataset for this Challenge. CTGAN is a neural network model that helps to detect the distributions for the dataset and tries to generate data records with similar distribution compared with the original datasets. It can deal with both continuous and categorical features.

7. **Challenge Instructions and Requirements:** When creating your Solution, you may use a **novel combination** of existing machine learning and/or statistical methods, **or develop your own** novel method in order to extract and/or represent thematic information from the data file.

The output needs to include prediction of a target variable. Additionally, your Solution must meet the following requirements:

- You must use Python 3.
- You must provide citations and sources.

- (a) **Challenge Suggestions:** You may use any clustering, dimensionality reduction, or other algorithm families. Please note that among other criteria, you will be evaluated on whether your selections of methods are appropriate for structured data.

- (b) **Key Deliverables:**

Deliverable 1: Your results

A table of your results assigning topics to a list of dataset description identifiers in the format shown below.

Very important note: Each solution received should ensure that the `dataset_id` is present in every record and arranged numerically in the **same** order as the `testset_for_participants.csv` file. The solution should also contain a column called 'FRAUD_NONFRAUD', which is the predicted class (either FRAUD or NONFRAUD); value of this column needs to be 0 (FRAUD) and 1 (NonFraud). If this is not the case, the submission will be automatically disqualified.

dataset_id	FRAUD_NONFRAUD
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Deliverable 2: Your method

A description of your approach delivered as:

- A visual description (flow chart or similar) of the path of the data through your pipeline. Note the areas where your approach is novel.
- A few paragraphs describing the rationale behind your method.

Deliverable 3: Your code

- Well-commented code that is operational and can be run using the data provided and generating the output of your approach.
- An environment configuration file that lists the names and versions of the libraries you used.

8. **Entering/Submitting Your Solution:** To submit your Solution and enter the Challenge on or before the Challenge Submission Deadline (see Rule 2), you must do the following:
- Register for a free MindSumo.com account. If you are already a MindSumo registrant, you can proceed to the next step. To register with MindSumo, you will be required to agree to the MindSumo Terms of Use available at www.mindsumo.com/terms. The MindSumo Terms of Use apply to this Challenge. Capitalized terms used in these Official Rules will have the meaning given to them in the MindSumo Terms of Use, unless otherwise noted.
 - Find the Wells Fargo Challenge in the Challenge Listings or you can go directly to the Challenge Website at <https://www.mindsumo.com/contests/campus-analytics-challenge-2021>. (If you are a new registrant, you will be directed automatically to the Challenge Listings upon signing up.)
 - Submit your Solution by typing it directly into the Challenge Website or uploading it as a separate file. You may edit your Solution on the Challenge Website until the Challenge Submission Deadline, or you can compile your Solution and upload it as individual files or as a zip file. For accessibility, PDFs can be converted from text to speech (<https://helpx.adobe.com/learning-suite/kb/text-speech-converter-various-languages.html>). The Challenge will also be available to Students via audio file (mp3).

By entering, you warrant and represent the following with respect to your Solution: (a) you own or control all rights in and to the Solution; (b) the Solution has not been and will not be assigned or transferred to another party; (c) the Solution is yours to give to Sponsor per these Official Rules; (d) the Solution is your own creation; and (e) nothing in the Solution will infringe on any rights of any third parties.

9. **Challenge Judging:** Your Solution will be judged based on your responses to each Key Deliverable of the Solution based on the criteria in Rule 10 below. Each judge may award a **maximum of 160 points** for any given Solution. Each submitted Solution will be initially screened for eligibility and appropriateness. At

judges' sole discretion, Solutions which do not specifically address one or more Key Deliverables, are incomplete, do not pass the screening, and/or are deemed to be negative, offensive or controversial in any way will be disqualified from the Challenge. Judges make the final determination as to which Solutions are eligible for judging in the Challenge.

- **Round 1 Judging:** All eligible Solutions will be judged by a panel of judges from MindSumo.
- **Round 2 Judging:** Selected Solutions from Round 1 Judging will be graded by an automated evaluation model (maintained by the Sponsor) based on the F1 Score. The Solutions with up to the top eight (8) highest F1 scores will be selected as potential finalists ("Finalists").
- **Round 3 Judging:** Each of the Finalists' Solutions will then be judged by a second panel of judges from Wells Fargo and MindSumo based on the judging criteria below to select up to three (3) winners.

Tie-Breaking: In the event of a tie, tie-breaking criteria will be applied to determine the winning Solutions starting with the Rigor criteria, followed by the Actionability of Insights, followed by the Originality and Innovation, then the overall quality of presentation in such order, as needed. (See Rule 10 "Judging Criteria" below for category descriptions.)

- 10. Judging Criteria:** All Solutions will be reviewed for content, and no guarantee is made as to when/if any particular Solution will be used or developed by Sponsor. Solutions containing prohibited content and/or otherwise deemed by Sponsor, in its sole discretion, to be inappropriate will be disqualified. Judges' decisions will be final and binding in all matters relating to the Challenge. Solutions (and all components thereof) will not be returned. By participating, you agree to abide by these Official Rules, the MindSumo Terms of Use and the decisions of the Sponsor and judges, which shall be final and binding in all matters relating to the Challenge.

Category	Max Points
A. Rigor	
a) Is the solution working, complete, comprehensive, and clear?	20
b) Are the results reproducible, and reliable?	10
c) Is analysis reliable?	10
d) Does the code meet desired level of quality? Is the code well commented?	10
e) Do the design and the approach demonstrate robustness and coherence?	10
f) Did you acknowledge and justify all necessary assumptions?	10
g) Is the description of the strengths and limitations of your method well thought-out?	10
h) Real-world potential and benefits.	10
B. Actionability of Insights	
a) Does the solution calculate the F1 score?	15
b) Summary/Interpretation of the score?	20
C. Originality and Innovation	
a) Creativity and uniqueness of the proposed method, implementation and usability.	10
D. Overall quality of presentation	
a) Effective choice of visuals, page layout and use of real estate for both deliverables 1, 2 and 3 (Refer to Rule 7b Key Deliverables).	15
b) For the written language parts of the deliverables, does each point flow logically from the previous point?	10
Total Points	160

11. Prizes: The following prizes are available:

- a) One (1) first place prize: \$7,500
- b) One (1) second place prize: \$5,000
- c) One (1) third place prize: \$2,500
- d) Five (5) Finalist prizes: \$1,000

Sponsor reserves the right to award fewer than the advertised number of prizes in the event an insufficient number of submissions/Solutions are received that are of reasonable quality to merit a prize.

12. Winner Notification and Prize Award: The potential first, second, and third place winners and other Finalists (collectively, "Prize Winners") will be notified by Wells Fargo by telephone and/or email on or about 11/09/2021 using the contact information provided upon registration. No liability is assumed for any notification that is lost, intercepted or not received by a potential Prize Winner for any reason. If a potential Prize Winner does not reply to the notification within five (5) business days of the date of the notification, s/he may be deemed to be ineligible, at the Sponsor's sole discretion. After responding to the notification, potential Prize Winners will be sent (based on the domestic U.S. address they provide Wells Fargo) from The Barrett Group, Inc. ("Administrator"), by overnight mail an Affidavit of Eligibility, Liability Release, Assignment of Intellectual Property Ownership, Publicity Release (where legal), Non-Disclosure Agreement, and an IRS W-9 Tax Form ("Prize Claim Documents"). Potential Prize Winners will be required to sign and notarize the Affidavit. If the Prize Claim Documents are not properly executed and returned within ten (10) business days of the date on the accompanying letter, the prize may be forfeited and may be awarded to the next highest scoring Student. Prize Claim Documents will only be sent to an address in the U.S. If a potential Prize Winner is outside of the U.S. at the time of notification, an extension to properly execute and return the Prize Claim Documents may be granted at Sponsor's sole discretion. Prize money will be awarded in the form of a check and will be sent via traceable mail to an address in the U.S. within 10 business days of completion of Prize Winner verification. Prize Winners will receive an IRS Form 1099 reflecting the value of the prize received.

Wells Fargo reserves the right to conduct a background check of any and all records of any or all potential Prize Winners, including without limitation, civil and criminal court records and police reports. To the extent necessary under law, the potential Prize Winner agrees to authorize this background check. Wells Fargo may also take all steps necessary to corroborate any information provided by the potential Prize Winner in his/her background check. In that regard, the potential Prize Winner will be obligated to provide necessary contacts and information so that Wells Fargo may conduct such investigation. Wells Fargo reserves the right (at its sole discretion) to disqualify any potential Prize Winner from receiving a Prize based on the results of the background check if, in its sole discretion, Wells Fargo determines that awarding a prize to such potential Prize Winner might reflect negatively on Wells Fargo's image and/or reputation. If a potential Prize Winner has engaged in or does engage in any conduct that could damage the reputation or business of Sponsor, as determined by Sponsor in its discretion, the potential Prize Winner may be disqualified and the prize may be awarded to an alternate Prize Winner.

13. Publicity/Usage Rights: By participating in this Challenge, each Prize Winner irrevocably grants Sponsor and their agents and persons acting with Sponsor's authority, a royalty-free, exclusive, fully transferable, assignable, and sublicensable right and license to use, reproduce, modify, display, transmit, adapt, publish, translate, creative derivative works from, and distribute any submission (or any portion thereof), throughout the world and in perpetuity, in all media now known or hereafter devised and for all lawful business purposes of Sponsor and its affiliates (including without limitation, advertising, promotional, marketing, commercialization, and any other purposes). Each Prize Winner agrees to irrevocably assign

and transfer to the Sponsor any and all rights, title and interest in the winning Solution including, without limitation, all copyrights and waive all moral rights. Except where prohibited, participation in the Challenge and/or receipt or use of any prize by a Prize Winner further constitutes such Prize Winner's consent for use of his/her name, likeness, voice, and photo submitted as part of the entry process, for promotional or advertising purposes in any media, worldwide, now known or hereafter developed, in perpetuity, without further review, notification, payment, or consideration (unless prohibited by law). **If you do not agree to the terms of these Official Rules or the MindSumo Terms of Use, do not enter this Challenge.** If any term or condition of these Official Rules conflicts with or is inconsistent with any term or condition of the MindSumo Terms of Use, the terms and conditions in these Official Rules shall govern and be controlling.

14. Additional Rules: Entry materials/data that have been tampered with or altered are void. No responsibility is assumed for: (a) lost, late, misdirected, damaged, garbled, incomplete or illegible entries, all of which are void; (b) error, omission, interruption, deletion, defect, delay in operations or transmission, theft or destruction or unauthorized access to or alterations of entry materials, or for technical, network, telephone equipment, electronic, mobile device, computer, hardware or software malfunctions of any kind, or inaccurate transmission of or failure to receive entry information by MindSumo or Sponsor on account of technical problems; or (c) any injury or damage to entrant's or any other person's mobile device or computer related to or resulting from participating in the Challenge. The date and time of entry receipt shall be determined by the official clock on the Challenge Website. Submitted materials become the sole property of Sponsor and will not be acknowledged or returned. If for any reason this Challenge is not capable of being run as planned due to tampering, unauthorized intervention, fraud, technical failures, or any causes beyond the control of the Sponsor which corrupt or affect the administration, security, fairness, integrity or proper conduct of this Challenge, or for any other causes beyond the Sponsor's control, or for any reason Sponsor deems it necessary, Sponsor reserves the right in its sole and unequivocal discretion to cancel, terminate, modify, delay or suspend the Challenge. If the Challenge is cancelled, all submitted Solutions up to the point of termination will be judged by the judges according to the Challenge criteria and winning Solutions will be selected if there are prize-worthy Solutions. By participating in this Challenge, you consent to allow MindSumo to use and to disclose your personal information to Wells Fargo and the Administrator only for the purpose of administering this Challenge.

15. Release of Liability: By participating, you release and hold harmless Wells Fargo, MindSumo, and the Administrator and their respective parents, subsidiaries, affiliates, related companies, directors, officers, employees and agents (collectively, the "Releasees") from any and all liability for any injuries, loss or damage of any kind arising from, or in connection with, this Challenge, the prizes or the awards. You agree to indemnify and hold Releasees harmless from any and all claims, damages, loss, injury, expenses and costs (including reasonable attorneys' fees) brought or asserted by any third party against any of the Releasees due to or arising out of your Solution or participation in this Challenge including, but not limited to, trademark, copyright, or other intellectual property rights, right of publicity, or right of privacy or defamation, injury, loss or damage caused or claimed to be caused by your participation in the Challenge and/or the acceptance, awarding, receipt, use and/or misuse of the prize, and you agree that these entities are not responsible for any warranty, representation, or guarantee, expressed or implied, in fact or in law, relating to the Challenge and/or the awarding of any prize except as expressly provided in these Official Rules. By participating, you agree that: (a) any and all disputes, claims, and causes of action arising out of or in connection with the Challenge, or any prizes awarded, shall be resolved individually without resort to any form of class action; (b) any claims, judgments and awards shall be limited to actual out-of-pocket costs incurred, including costs associated with entering the Challenge, but in no event attorney's fees; (c) under no circumstances will any entrant be permitted to obtain any award for, and entrant hereby waives all rights to claim, punitive, incidental or consequential damages and any and all rights to have damages multiplied or otherwise increased and any other damages, other than damages for actual out-of-

pocket expenses; and (d) these Official Rules and all disputes shall be governed by the internal laws of the state of California; without regard to principles of conflicts of laws, any disputes shall be resolved exclusively in the state or federal courts in the state of California, and you expressly consent to the jurisdiction of said courts and waive any objection thereto. ***For New Jersey residents, the limitations set forth above are inapplicable where attorneys' fees, court costs, or other damages are mandated by statute.***

- 16. Privacy Policy:** Any information you submit is subject to Sponsor's privacy policy available at <https://www.wellsfargo.com/privacy-security/>. Your participation in this Challenge constitutes your consent for Sponsor, MindSumo and Administrator to use your personal information only for the purpose of administering the Sweepstakes and awarding the prizes.

ANY ATTEMPT TO CHEAT OR ANY ATTEMPT TO DELIBERATELY DAMAGE ANY WEBSITE OR UNDERMINE THE LEGITIMATE OPERATION OF THE CHALLENGE IS A VIOLATION OF CRIMINAL AND CIVIL LAWS. SHOULD SUCH AN ATTEMPT BE MADE, THE SPONSOR RESERVES THE RIGHT TO SEEK DAMAGES OR OTHER REMEDIES FROM ANY SUCH PERSON(S) RESPONSIBLE FOR THE ATTEMPT TO THE FULLEST EXTENT PERMITTED BY LAW.

- 17. Force Majeure:** The failure of Sponsor, MindSumo, or Administrator to comply with any provision of these Official Rules due to an act of God, hurricane, war, fire, riot, earthquake, terrorism, national or global health crisis, act of public enemies, actions of governmental authorities — outside of their control (excepting compliance with applicable codes and regulations) — or any other cause beyond their reasonable control, whether similar or dissimilar to any cause listed herein, will not be considered a breach of these Official Rules.

- 18. List of Prize Winners:** For a list of each Prize Winner's first name, last initial, city and state, send a self-addressed, stamped envelope to be received by 1/31/22 to: Wells Fargo Challenge Winners, 2554 Lincoln Blvd., PMB 566, Venice, CA 90291-5082.

- 19. Sponsor:** Wells Fargo Bank, N.A., 800 Walnut St., MAC F001-01G, Des Moines, IA 50309

- 20. Administrator:** The Barrett Group, Inc., 2554 Lincoln Blvd., PMB 683, Venice, CA 90291-5082

ACCEPTANCE OF OFFICIAL RULES – By clicking “**I agree**” below, you agree to each of the terms and provisions of these Official Rules and the MindSumo Terms of Use and agree on behalf of yourself and your personal representatives, heirs, next of kin, successors and assigns not to contest the validity of this Challenge or any part of it due to the fact you checked the box below. **If you do not agree to all of the terms of these Official Rules or the MindSumo Terms of Use, you understand that you will not be allowed to participate in the Challenge.**

By submitting a Solution in this Challenge, I signify that I agree to these Official Rules and the MindSumo Terms of Use. I understand that the dataset provided is proprietary to Wells Fargo and it may not be used for any other purpose than to provide a Solution in this Challenge.

☐ I agree

☐ I do **NOT** agree and as such do not wish to be entered into the Challenge

