Finalised Challenges

▼ Facility Location Problem (FLP) - Women's Healthcare Access Challenge:

Welcome to the "Optimal Healthcare Facility Location Challenge"! In this challenge, your task is to identify the optimal locations for new healthcare facilities to maximise women's access to healthcare services. You will extract or use this dataset representing the population distribution and healthcare facility locations. Your algorithm should consider factors such as distance, transportation accessibility, socio-economic disparities, and specific healthcare needs of women to determine the best locations for the new healthcare facilities.

From the Central Bureau of Statistics and the OpenStreet Map API or this dataset, you will need to extract information containing information about the population distribution in a particular region and the locations of existing healthcare facilities. Your goal is to identify the optimal locations for new healthcare facilities that will maximise women's access to healthcare services. The following factors should be considered in your algorithm:

1. Distance: The proximity of the healthcare facilities to the population centers should be taken into account. The algorithm should aim to minimise the travel distance for women to access healthcare services.
2. Transportation Accessibility: Consider the transportation options available to the target population, including public transportation, road networks, and any specific transportation challenges that may impact women's access to healthcare. Incorporate these factors into the facility location optimisation process.
3. Socio-economic Disparities: Take into consideration the socio-economic disparities within the population. Identify areas with higher concentrations of disadvantaged women or underprivileged communities that may require greater access to healthcare services.

4. Specific Healthcare Needs of Women: Consider the specific healthcare needs of women, including services related to reproductive health, maternal care, gynecological care, and specialised treatments. The algorithm should prioritise locations that can cater to these specific needs effectively.

Data mining:
Find information about the population distribution in the region, including demographic data related to women, and the locations of existing healthcare facilities. Figure out how to wrangle it into a structured format(hint: pandas), such as a CSV file, with relevant attributes for each location.

Evaluation Criteria:
Your algorithm will be evaluated based on the following criteria:

1. Accessibility: How well your algorithm identifies optimal locations that maximise women's access to healthcare services, considering distance, transportation accessibility, and socio-economic disparities.
2. Accuracy: The accuracy of your algorithm in predicting the impact of the new healthcare facility locations on women's access to healthcare services.
3. Consideration of Women's Healthcare Needs: The extent to which your algorithm incorporates the specific healthcare needs of women in the facility location optimisation process.
4. Efficiency: The efficiency of your algorithm in terms of time complexity and scalability.

Submission Guidelines:
To participate in the challenge, you are required to submit the following:

1. Source Code: The complete source code of your algorithm implemented in a programming language of your choice.
2. Documentation: A brief document describing your algorithm, including the approach taken, key considerations, and any additional insights or observations.
3. Results and Analysis: A summary of the optimal healthcare facility locations generated by your algorithm, showcasing how they maximise women's access to healthcare services and any additional analysis or observations.

4. Instructions: Instructions on how to run your code and reproduce the optimal healthcare facility locations.

Please submit your entry by 04/06/23 at 16:00 to this drive folder

Good luck in identifying the optimal healthcare facility locations! Your algorithm has the potential to make a significant impact on improving women's access to healthcare services. Let's work towards a healthier and more equitable society for all women!

▼ Women vs. John: A Battle in the Workplace

Challenge: Empowering Women in the Workplace

Women CEOs now outnumber those named John at S&P 500 big companies

Women continue to face challenges and underrepresentation in various professional fields. In this challenge, your task is to analyse or investigate or propose solutions to empower women, spread information or improve their positions in different industries.

You will be provided with a API that includes information on women's participation, representation, and career progression in specific fields or sectors. The data in this API may contain variables such as employment rates, info about women in jobs, salary gaps, leadership positions held by women, and industry-specific indicators.

Participants are encouraged to make a project in this theme that will be interesting, useful, informative, or creative. Coding is not a must but encouraged.

Possible solutions may involve:

1. **Policy Recommendations**: Develop policy recommendations or initiatives that can be implemented backed by data analysis or some algorithmic investigation
2. **Analysing Discrepancies:** Develop plots, visuals or a report about discrepancies between genders, fields, sentiments or positions.
3. **Predict What the Future Will Hold for Women in these Fields**
4. **Anything Else That Is Related!**

Instructions:

1. Dataset Exploration:
    - You will be provided with a API that includes information on women's participation, representation, and career progression in specific fields or sectors.
    - The some insights may contain variables such as employment rates, salary gaps, leadership positions held by women, and industry-specific indicators.
    - Thoroughly explore the API data, analyse the available variables, and identify key insights or patterns related to women's empowerment and their experiences in the workplace.
2. Problem Identification:
    - Based on the API dataset exploration, identify specific challenges, disparities, or areas of improvement for women in the workplace.
    - Focus on a particular industry, field, or aspect where women face significant barriers or underrepresentation.
    - Clearly define the problem you want to address and explain why it is important to empower women in this context.
3. Solution Development:
    - Develop a solution that aims to empower women, spread information, or improve the positions of women in the identified industry or field.
    - You can choose from the following solution categories or propose an alternative approach that aligns with the challenge theme:
        - Policy Recommendations: Develop policy recommendations or initiatives that can be implemented, backed by data analysis or algorithmic investigation. Provide evidence and insights to support your recommendations.
        - Analysing Discrepancies: Develop plots, visuals, or a report about discrepancies between genders, fields, sentiments, or positions. Highlight the disparities and propose strategies for addressing them.
        - Predict the Future: Utilise the available data and trends to predict what the future holds for women in the identified industry or field. Analyse

potential outcomes, opportunities, and challenges, and propose ways to ensure a more equitable future.

    - Anything Else That Is Related: Propose an innovative and creative solution that addresses the challenges faced by women in the workplace. This can include developing a tool, platform, campaign, or any other idea that promotes women's empowerment and equal opportunities.

4. Presentation or Report:
    - Create a presentation or report that showcases your analysis, investigation, or proposed solutions.
    - Clearly articulate the problem, your approach, key findings, and the potential impact of your solution.
    - Use visuals, graphs, or any other means to effectively communicate your insights and recommendations.
    - Provide supporting evidence from the API dataset or external sources to validate your claims and enhance the credibility of your solution.
5. Optional Coding Component:
    - While coding is not mandatory for this challenge, participants are encouraged to use their programming skills to support their analysis, visualisation, or solution development.
    - You may choose to utilise programming languages, data analysis tools, or machine learning algorithms to enhance your work, if relevant.
6. Creativity and Impact:
    - Judges will evaluate submissions based on the creativity, novelty, and impact of the solutions proposed.
    - Consider innovative approaches, unique perspectives, and practical strategies to empower women in the workplace.
7. Submission:
    - Submit your presentation, report, or any relevant materials that showcase your analysis, investigation, or proposed solutions.

- Include clear documentation on your approach, methodology, and any code (if applicable).
- Provide references or citations for external sources used in your work.

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▼ SHERO Shield: Unleashing Women's Cyber Superpowers

Imagine a world where women not only overcome cyber security challenges but harness their unique strengths to become digital superheroes. Develop an extraordinary technological solution that not only safeguards women's well-being in the digital realm but also empowers them to embrace their cyber superpowers and inspire others to do the same.

Key Criteria and Considerations:

1. Superpower Activation: Design a solution that encourages women to discover and unleash their digital superpowers. Whether it's by enhancing their resilience, intuition, or technical skills, empower them to navigate the online world with confidence and expertise.
2. Cyber Guardian: Create a comprehensive cyber security platform that serves as a guardian and ally for women. Develop innovative features like real-time threat detection, personalised risk assessment, and predictive analytics to proactively defend against cyber threats targeting women.
3. Empowering Community: Foster a supportive and inclusive online community where women can connect, share experiences, and learn from one another. Include features like mentorship programs, discussion forums, or virtual events to encourage collaboration and knowledge-sharing.
4. Cyber Wellness: Promote holistic well-being by integrating wellness and self-care elements into your solution. Consider incorporating features like mindfulness exercises, stress management tools, or personalised tips for maintaining a healthy digital lifestyle.

5. Gamified Learning: Make cyber security education fun and engaging by gamifying the learning experience. Develop interactive challenges, quizzes, or virtual reality simulations that educate women on cyber threats and provide practical strategies for staying safe online.
6. Futuristic Interface: Create a visually captivating and intuitive user interface inspired by futuristic elements. Use cutting-edge design techniques, augmented reality, or immersive visuals to enhance the user experience and make the solution feel truly empowering.

Suggested Steps:

1. Uncover the unique strengths and challenges faced by women in the digital landscape.
2. Ideate and conceptualise a cyber security solution that taps into the idea of women as digital superheroes.
3. Develop a visually stunning prototype or proof-of-concept that showcases the user experience and core features.
4. Craft a captivating presentation or pitch that highlights the narrative of women unleashing their cyber superpowers.
5. Demonstrate how your solution fosters community engagement, personal growth, and well-being in addition to cyber security.
6. Consider the scalability, sustainability, and ethical implications of your solution.

Remember, this challenge is all about creating an imaginative and inspiring cyber security solution that not only protects women but empowers them to embrace their inner cyber superheroes. Good luck, and may the SHERO Shield rise!

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Important Dates:

- Challenge Start Date: 03/06/23 11:05
- Challenge End Date: 04/06/23 16:00
- Submission Deadline: 16:00