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| Requirements |
| 1. Student data: Collect relevant information about each student, such as: |
| - Academic performance |
| - Learning style (e.g., visual, auditory) |
| - Interests and strengths |
| - Special needs or accommodations |
| 2. Class characteristics: Define attributes for each class, including: |
| - Curriculum focus |
| - Teaching style |
| - Class size and composition |
| - Availability of resources and support |
| 3. Matching criteria: Establish priorities and weights for factors like: |
| - Academic alignment |
| - Student interest and motivation |
| - Social dynamics and peer compatibility |
| - Teacher expertise and support (this must be a further defined sublist of independent variables (attributes/requirements) |
| * Family legacy |
| 4. Geographic location |
| - Daily roundtrip travel distance |
| - Mode of transportation (walk, parent ride, school bus, self-drives, rideshare, taxi) |
| 5. Algorithm or logic: Develop a system to process the data and match students with classes, considering: |
| - Optimization techniques (e.g., maximum matching, stable marriage problem) |
| - Constraints and rules (e.g., class size limits, student conflicts) |
| 6. User interface: Design a user-friendly interface for: |
| - Student and teacher input |
| - Administrator management and monitoring |
| - Results visualization and reporting |
| 7. Flexibility and adaptability: Allow for adjustments and updates as needed, considering: |
| - Changes in student needs or class offerings |
| - New student enrollments or teacher assignments |
| 8. Data privacy and security: Ensure the program complies with relevant regulations and safeguards student data. |
| 9. Evaluation and feedback: Incorporate mechanisms for: |
| - Assessing the program's effectiveness |
| - Gathering feedback from students, teachers, and administrators |
| - Refining the matching process over time |
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This project seeks to consider the below requirements, and develop a student-to-class matching program that optimizes student placement and supports their academic success.