Project Step - 1

Identifying a Problem (Data Mining Task)

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"Forecasting Philanthropy: A Predictive Analysis for

Donors Supporting Various School Projects in the USA"

1. **Problem Selection**: Our team will build a regression model that forecasts/predicts analysis for donors to support various projects in different schools in the United States of America. The title of the project is, “Forecasting Philanthropy: A Predictive Analysis for Donors Supporting Various School Projects in the USA”.

2. **What data mining task will be used for analysis?**

   Regression involves predicting a continuous outcome based on input features. In our case, the continuous outcome is likely to be the amount of donation or some quantitative measure of donor support, and the input features will include various factors such as project details, school characteristics, and historical donation data.

   The goal of your project is to forecast and predict donor support for various school projects. This aligns with the regression task, as you aim to model the relationship between independent variables (features) and the continuous dependent variable.

   Tasks:

   - Data preprocessing and feature engineering.
   - Building a regression model using appropriate algorithms (linear regression, decision trees, ensemble methods, etc.).
   - Evaluation of the model's performance, potentially using metrics like Mean Absolute Error (MAE) or Root Mean Squared Error (RMSE).

   By choosing regression as the primary data mining task, we're focusing on developing a model that can provide quantitative predictions for the level of donor support for various school projects in the USA.

3. **What data attributes our team will collect?**

   Our team will collect various attributes such as:

   - Donations:
     - Donation Amount
     - Donation Received Date

   - Donors:
     - Donor City
     - Donor State

    - Donor Is Teacher
    - Donor Zip

- Projects:
    - Project Type
    - Project Title
    - Project Essay
    - Project Short Description
    - Project Need Statement
    - Project Subject
    - Project Grade Level Category
    - Project Resource Category
    - Project Cost
    - Project Posted Date
    - Project Expiration Date
    - Project Current Status
    - Project Fully Funded Date

- Resources:
    - Resource Item Name
    - Resource Quantity
    - Resource Unit Price
    - Resource Vendor Name

- Schools:
    - School Name
    - School State
    - School Zip
    - School City
    - School County
    - School District

4. **What are the benefits of solving this problem?**

   Solving the problem of forecasting donor support for various school projects in the USA through a predictive analysis offers several significant benefits:

   - **Optimized Resource Allocation:** The ability to accurately forecast donor support allows schools to allocate resources more efficiently. Schools can prioritize projects based on predicted fundraising success, ensuring that critical initiatives receive the necessary funding.

- **Enhanced Fundraising Strategies:** Insights gained from the predictive analysis can inform the development of targeted and effective fundraising strategies. Schools can tailor their campaigns to appeal to specific donor preferences, increasing the likelihood of successful fundraising.
- **Improved Planning and Budgeting:** Accurate predictions enable schools to plan and budget more effectively. By knowing the expected level of donor support, schools can set realistic fundraising goals and allocate budgets accordingly, preventing financial shortfalls.
- **Increased Project Success Rates:** With a better understanding of donor behavior, schools can increase the success rates of their projects. Tailoring projects to align with donor interests and preferences, informed by the predictive model, enhances the chances of securing necessary funding.
- **Strategic Decision-Making:** Decision-makers in schools can make more informed and strategic decisions regarding project selection, timing, and execution. Predictive analysis provides valuable insights that contribute to evidence-based decision-making.
- **Enhanced Donor Engagement:** By understanding donor preferences and predicting their likely support, schools can engage donors more effectively. Personalized and targeted communication strategies can foster stronger relationships between schools and donors.
- **Increased Donor Satisfaction:** A predictive model helps schools align their projects with donor expectations. Meeting or exceeding these expectations enhances donor satisfaction, potentially leading to repeat donations and long-term support.
- **Data-Driven Philanthropy:** The project promotes a data-driven approach to philanthropy, emphasizing the importance of leveraging data to optimize fundraising efforts. This contributes to a culture of evidence-based decision-making in the educational sector.
- **Positive Impact on Education:** Successful fundraising directly translates to positive impacts on education. Schools can implement projects that enhance the learning environment, improve educational resources, and provide students with valuable opportunities.
- **Community Engagement:** Predictive analysis fosters community engagement by involving donors in the school's initiatives. When donors see the tangible results of their support, it encourages a sense of community involvement and pride.

In summary, solving the problem through predictive analysis not only improves fundraising outcomes for school projects but also has broader implications for effective resource management, strategic decision-making, and positive community engagement in support of education.