MAS DSE 260: Capstone Project

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Lecture 6: Modeling and Visualization

Today's Topics

1. Looking Ahead

2. STEP VI Report : Modeling and Visualization Report Format

    --- DUE 4/15/22 9am

Milestones for the Capstone Project

- **Second Year:**
  - <u>Late Fall Quarter:</u> Capstone project class is introduced. Advisors provide short summaries of projects so that students can identify who they want to work with. Students start to form teams, define project and find advisor.
  - <u>Winter Quarter:</u> Teams work on their projects and present progress reports. Suggested meeting schedule: once a month for 2 hours with advisor, twice a month with capstone faculty (i.e. Altintas).
  - <u>Spring Quarter:</u> Teams finalize their projects, including documentation and final report. Teams make open presentations to their peers, advisor and capstone faculty, and receive final grade.

Process Roadmap (260 A)

✓ Step 1: Understanding the Challenge
  ✓ REPORT 1
✓ Step 2: Designing the Data Acquisition and Preparation Pipelines
  ✓ REPORT 2
• Step 3: Exploring Data
  ✓ PRESENTATION 1: 2/5
  ✓ REPORT 3: due 2/17
✓ Step 4: Defining Your Hypothesis and Minimum Viable Modeling Product
  ✓ REPORT 4: due 3/3
  ✓ PRESENTATION 2: 3/5
✓ Step 5: Creating a Solution Architecture for Modeling and Optimization
  ✓ FINAL WINTER REPORT: due 3/13

Process Roadmap (260 B)

- Step 6: Modeling and Visualization (4/1/22)
  - REPORT 6: due 4/15
- Step 7: Evaluating and Interpreting Modeling Results (4/15/22)
  - PRESENTATION 3: 4/15
  - REPORT 7: due 4/29
- Step 8: Deploying a Robust and Scalable Solution (4/29/22)
  - REPORT 8: due 5/13
- Step 9: Developing a Communication Plan and Monitoring Dashboard (5/13/22)
  - PRESENTATION 4: 5/13
  - REPORT 9: due 5/27
- Step 10: Optimization -- No class, work on finalizing projects.
  - REPORT 10: due 6/2
  - FINAL REPORT AND POSTER: due 6/2
- FINAL PRESENTATION AND DEMO (6/3/22)

Grading

- Reports: 5% each, total 50% over two quarters
  - Along with the report, the following should be sent as a personal email:
    - Group member evaluation 1-5 for each report
    - Summary of personal contribution in the context of what was submitted
- Presentations: 5% each, total 20% over two quarters
- Final presentation and demo: 10%
- Final report: 5%
- Final poster: 5%
- Submission to the library: 2%
- Attendance during meetings and presentations: 3%
- Staying together as a group: 5%

STEP 6: Modeling and Visualization

(more of it…)

Step VI Report Guidelines

- Title, team members and advisor(s)
- Modeling
  - **Analytic Approach:** questions and target definition, inputs, kind of model being built, etc.
  - **Model Description:** Training and scoring, types of learners, learner parameterization, etc. as applicable; Description or images of dataflow graph including training and scoring.
  - **Model Performance**: Results and evaluation (ROC, R^2, MAPE, etc.)**;** Performance graphs for various models as appropriate
  - **Model Interpretation:** Insights derived from results, significance of results, etc.
  - **Conclusion and Discussions for Next Steps:** What was learned in this cycle?; What new features, datasets, techniques, etc. do you plan to add based on the results?
- Visualization
  - Keep the visualizations simple; focus on what is valuable to communicate; skip the details in the report, but add links to your notebooks.
- Bullets for each team member's individual contributions in Step 6
- Any major updates to Steps 1 through 5 as a result of Step 6
- Keep it to 4-6 pages
- Due date: 4/15/2022 9am

Next Presentation (4/16/18)

- **Audience:** Data Science Methods and Domain Teams
- **Main points** to be made
  - ➢ How accurate/significant are the results?
  - ➢ What are the main insights so far?
  - ➢ What are next steps for modeling based on the progress and why?
- **Discussion:** How do domain experts want to see the results communicated? Charts, reports, visualizations, …?
- **Reminder:** Don't forget to include your team, problem definition and data definitions in the beginning of the presentation. Think story lines in the captions!

Questions?

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