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 4/12/18

Milestones for the Capstone Project

- First Year:
  - Spring Quarter: Capstone project class is introduced.
  - Summer: 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.
- Second Year:
  - Fall Quarter: Students finalize project teams and start collecting/exploring data.
  - Winter Quarters: Teams work on their projects and present monthly progress reports. Alternate meetings: once a month for 2 hours with advisor, twice a month for half an hour with capstone faculty (i.e. Altintas).
  - Spring quarter: 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: due 1/18
- ✓ Step 2: Designing the Data Acquisition and Preparation Pipelines
  - ✓ REPORT 2: due 2/1
- ✓ Step 3: Exploring Data
  - ✓ PRESENTATION 1: 2/3
  - ✓ REPORT 3: due 2/15
- ✓ Step 4: Defining Your Hypothesis and Minimum Viable Modeling Product
  - ✓ REPORT 4: due 3/1
- ✓ Step 5: Creating a Solution Architecture for Modeling and Optimization
  - ✓ PRESENTATION 2: 3/3
  - ✓ FINAL WINTER REPORT: due 3/16

Process Roadmap (260 B)

- Step 6: Modeling and Visualization
  - REPORT 6: due 4/12
- Step 7: Evaluating and Interpreting Modeling Results
  - PRESENTATION 3: 4/13
  - REPORT 7: due 4/26
- Step 8: Deploying a Robust and Scalable Solution
  - REPORT 8: due 5/10
- Step 9: Developing a Communication Plan and Monitoring Dashboard
  - PRESENTATION 4: 5/11
  - REPORT 9: due 5/24
- Step 10: Optimization
  - FINAL REPORT AND POSTER: due 6/8
  - FINAL PRESENTATION AND DEMO: due 6/9

Grading

- Reports: 5% each, total 50% over two quarters
- Presentations: 5% each, total 20% over two quarters
- Final presentation and demo: 15%
- Final report: 10%
- Final poster: 5%

STEP 6: Modeling and Visualisation

(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: 4/12/2018 midnight

Next Presentation (4/13/18)

- **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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