Predicting Student Performance in edX MOOCs using Browser Events

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Objectives & Acquisition:

- Predict student outcomes in MOOCs offered by edX
 - Outcomes: Certification & Grade Ranges
- Determine browser events that affect student outcomes
- Dataset: 129843 student logs containing browser events
- Source: edX courses administered by HarvardX & MITx from 2012 & 2013

Methodology:

Cleansing

Exploration: Generated 15 New Features

Modeling & Evaluation

Repeat

Target Course

Title: Intro. to Computer Science & Programming

Institution: MITx

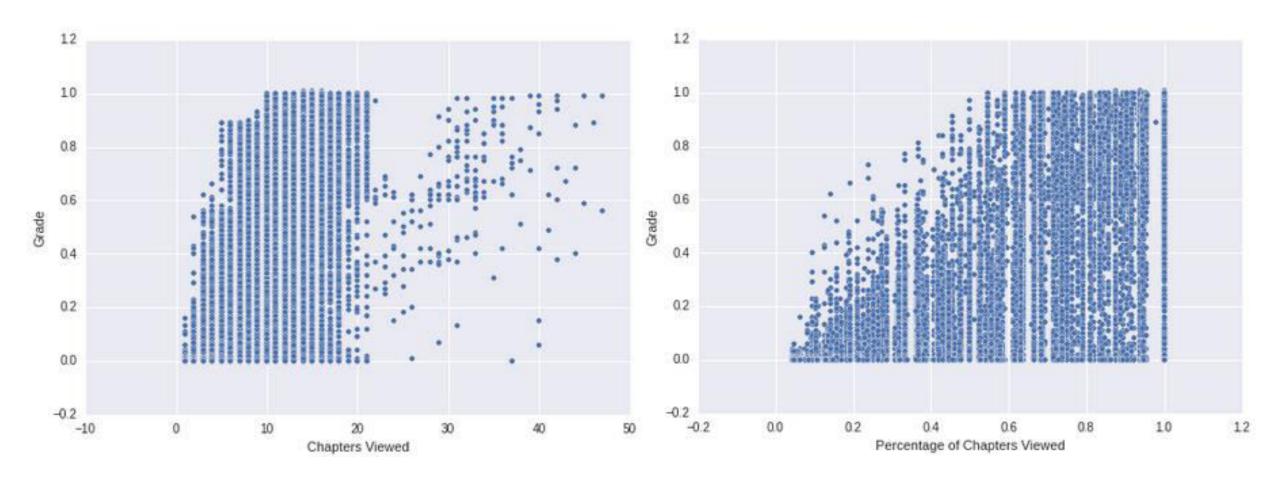
Number: 6.00x

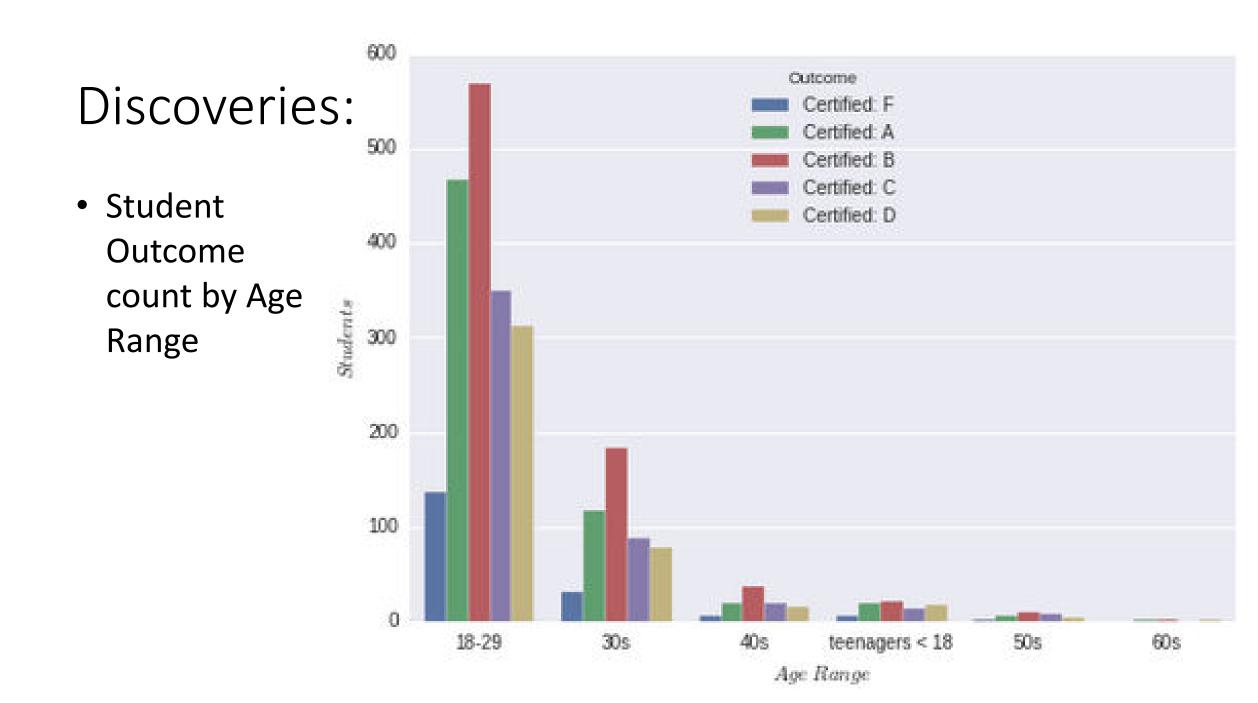
Logs: 51437

Certified: 5 %

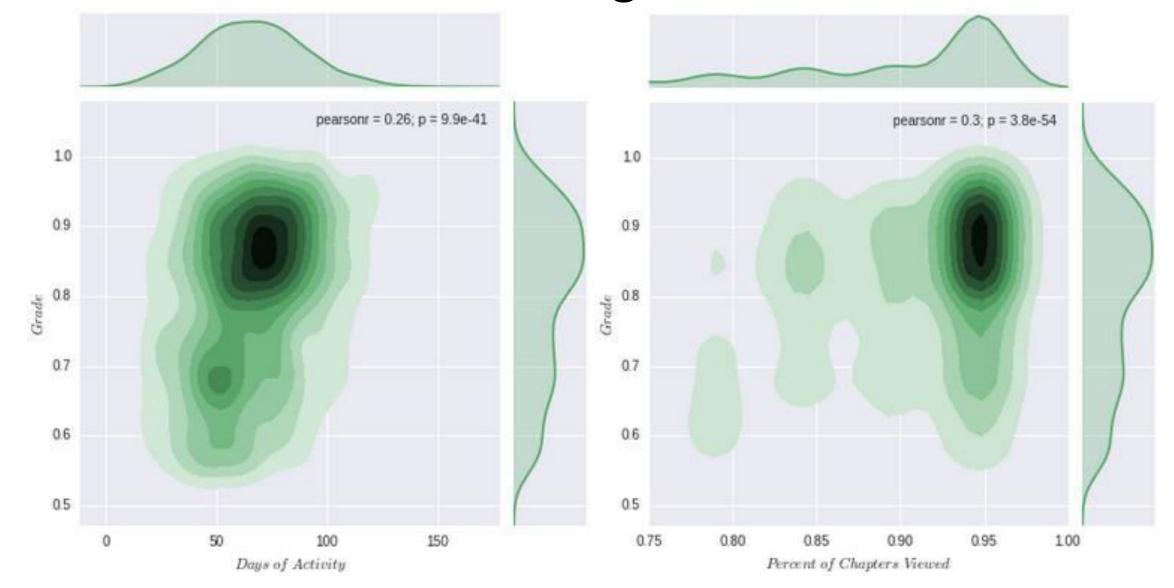
2539 Certifications

Discoveries: Tranformation

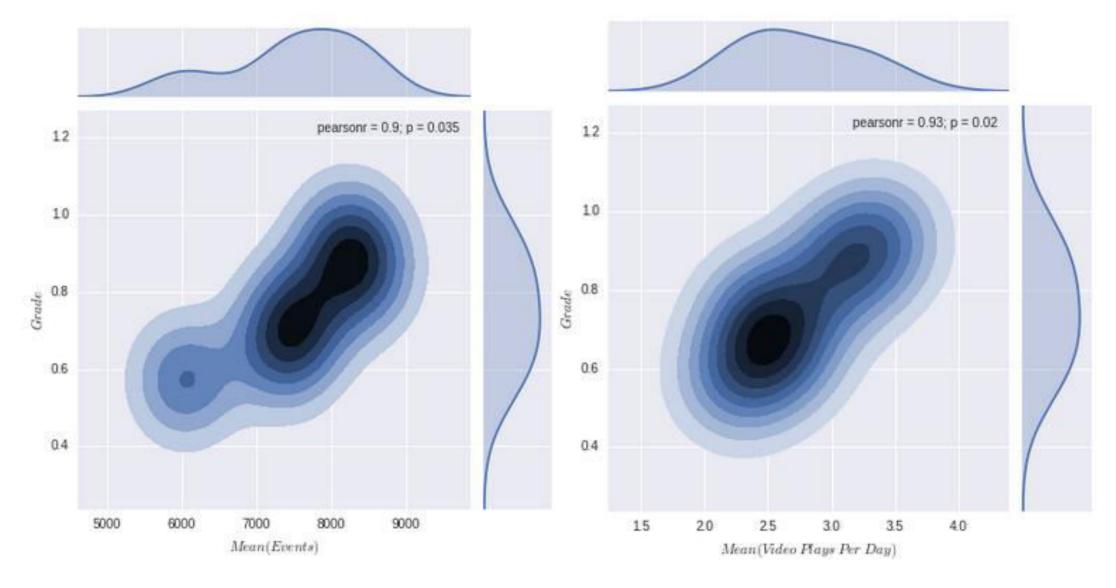




Discoveries: Student Logs



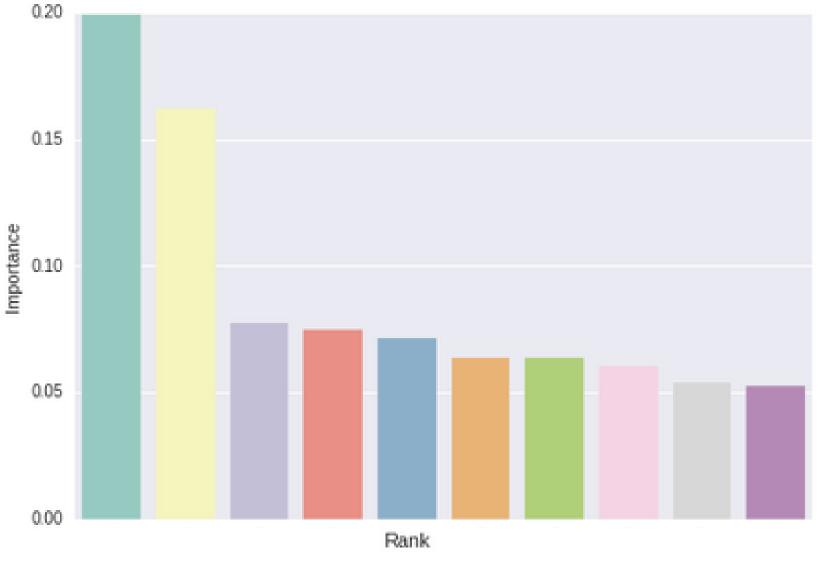
Discoveries: Student Outcomes



Modeling: Random Forest Classifier

- Train: MITx dataset without 6.00x
- Test: 6.00x
- Most Relevant Metrics:
 - Accuracy Score: 0.995
 - 95.6% of students correctly classified (49149)
 - Zero One Loss: 0.005
 - 4.5% of students misclassified (2288)

Modeling: Top 10 Important Features



Feature Importance Rank:

- 1. Percentage of Chapters Viewed
- 2. Chapters Views per Day
- 3. Browser Events per Day
- 4. Days of Video Activity
- 5. Days of Activity
- 6. Video Plays / Events
- 7. Events
- 8. Chapter Views
- 9. Video Plays
- 10. Video Plays per Day

Questions?

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