

# Motivation of the edX InSight Project

Arinjoy Basak et al.

May 22, 2015

# What is edX InSight?

- InSight is a BI (Business Intelligence) platform that was built by edX for the purpose of communicating the details of the courses, and analytical data concerning the student activity on the various courses to the administrators and course instructors.
- The primary aim of this platform is not only to monitor the student performances and validation of the choices made in designing the course, but also allows the designers to re-think the choices, and improve the course in its different aspects for creating a better experience for the students.

# What is edX InSight?

- Insight is essentially a Django application that allows instructors and administrators to know about their students with respect to.
  - course activity
  - demographic distributions
  - location based distributions, and
  - educational qualifications
- The unstructured data in the form of events are stored in Amazon S3 as JSON objects, while the processed data is then stored in MySQL. Insight uses MySQL 5.1 for its purpose. The data is then transferred to Insights via a REST API.

# What our project is

- Our main project tasks are to study the edX InSight system and contribute towards its development and final integration with the IITBombayX MOOC Platform.
- In particular, our aim will be to extend and implement the edX InSight services so that it appropriately suits to the Indian education environment.

# Why do we need InSight?

- The study by Ma, Han, Yang and Chen analysed the the impact of an instructor on a students engagement in an online learning environment, by building an interaction activity model for the teaching and learning process.
- It was showed that learning data analytics could be used to capture authentic, timely and objective evidence regarding online learning behaviour, with a focus towards college level online learning environments.
- The course was the unit of analysis, not the student.

# Why do we need InSight?

edX Insight provides access to various graphs, metrics and reports for analysing the student behaviour and activity in different aspects, such as :

- Course Enrollment data : daily student enrollment chart, enrollment metric, and enrollment over time metrics.
- Engagement Data : weekly engagement charts, content engagement breakdown report.
- Demographic Data : analytics on age bands and educational backgrounds.
- Location/Geographic Data : enrollment geography.
- Data on graded and ungraded contents : Find points of difficulty, and attempts to solve the problems.



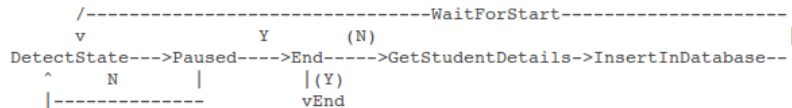
# Project application Idea 1

- Analyse the student learning behaviour and activities through the pauses in the lecture videos.
- The locations of the pauses could be collected as events, and metrics could be developed and appropriate visualizations made to notify or warn the instructors about the difficulty faced by students in particular parts of materials.
- This could then be met by appropriate measures on the teacher's end, such as
  - Adding more explanatory material
  - Release of an expansion video
  - More quizzes and practice exercises.



# Project application idea 1

- API exists for such tracking, and we can have a possible flow such as the following:



# Project application idea 2

- Create dashboard system for students based on their own course activity and performance
- Allow the students to understand whether they are either falling behind the others on their progress, at par with the other students, or ahead of the other students in learning
- This could be implemented as a mobile application too, refreshed with the analysed data and visualizations after a certain time period.

# Project application idea 3

- The communication and interaction between the students could be collected
- We can then use this data to visualize the communication and interaction between the students, to find the students/student groups who are in close communication, and those who aren't in close communication and are slightly outside this conglomerate, residing on the edges.

# Project application idea 4

- A spectral band image system for determining the student's performance
- —) Because people understand images better than text or data! (:D)
- The spectrum would have different colours for different areas (examinations, lessons, mood of students, activity overall)
- Intensity of the colours depicts performance.
- The degree of transitions between the individual regions determines the balance of the activities.

# Project application idea 5

- For each pair of students chosen at a time, show a graphical measure to determine interaction among any two students chosen at a time.
- For example, a colour spectrum with the degree of transition showing the amount of interaction between the students (may even extend to student and teacher/instructor)
- Can be used for determining homogeneity in student population and points of disturbances (less interaction, ineffective activity, behind others in progress, and so on).

# Topic 2

Use the following for creating a table

| No. | Name     | Project      |
|-----|----------|--------------|
| 1   | Firuza   | Code::Blocks |
| 2   | Birundha | edX          |

# References I