Hi,

We are building an application to organize historical student data (data from Moodle forum and WebSubmission system). The Moodle data is related with students' events (e.g. USER0039 had a resource_view at 21/ 07/ 14, 16:16, the resource viewed is "File: Sample Exam"). The WebSubmission data includes assignment submission time, mark and repository version of each student. Lecturers and researchers are the intended users of the application.

We want to identify some commonly asked questions so that we can calculate the answers to these questions in our application. Based on the schema of Moodle and WebSubmission, how would you relate the data to the questions?

Some example settings and questions:
(1) After an assignment is released, when do students begin to download resources? When do they start submitting and stop submitting? How many times do they submit?

(2) Do students who post more frequently on the forum start earlier when they submit their work? Do students who rarely post do well in assignments? Is the submission activity and posting activity occurring around the same points? Do students who don't submit anything participate in forum discussion? Are people who initiate forum threads more likely to respond and get better grades?
For the graphical representation, is it good to let users choose the content of each axis (e.g. : I can choose posting for x-axis and assignment mark for y-axis, thus the chart will be the relationship between posting and assignment mark. User can choose any available content for any axis to see the relationship between any two types of data)?
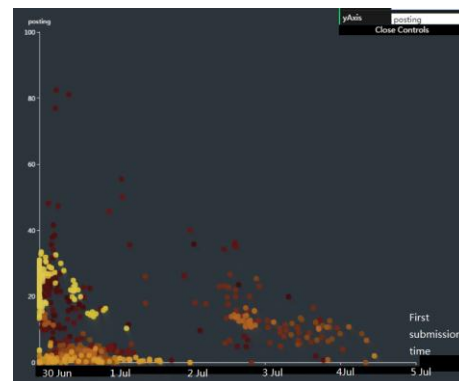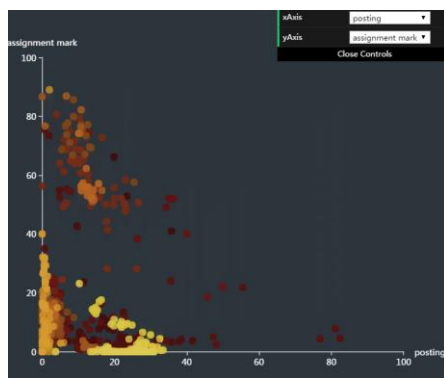

Figure 1.1: Relationship between posting and assignment mark Figure 1.2: Relationship between posting and first submission time

(3) If students cannot see the assignment mark immediately, they will keeping looking at forum discussion for insights. In this case, can you show me the students' posting behavior and assignment behavior on the same graph on the same time axis?
Figure 2 shows students' posting, submission (2 activities in line) in same graph. Figure 3 shows students' posting, downloading and submission (3 activities in line) in same graph. Figure 4 shows students' posting, downloading and submission (2 activities in bar, 1 activity in line) in same

graph. Which figure do you think is easier for you to read?
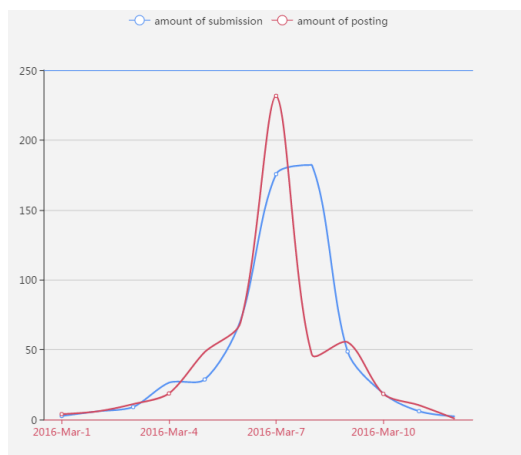
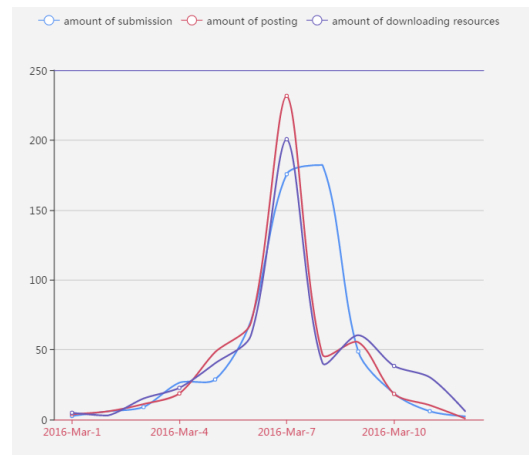

Figure 2: Posting and submission

Figure 3: Posting, downloading and submission (1)

Figure 4:　Posting, downloading and submission (2)

(4) How does somebody perform in all the assignments of a course? What's the submission pattern of each assignment like?

Figure 5, 6 show the submission pattern of different assignments. Which figure do you think is easier for you to compare and read?
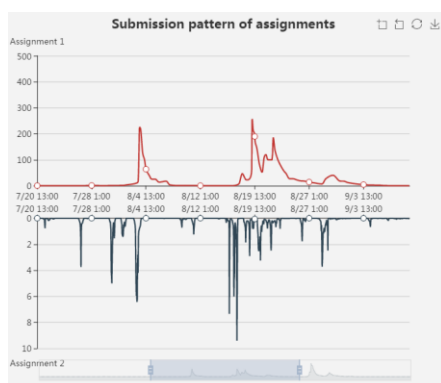

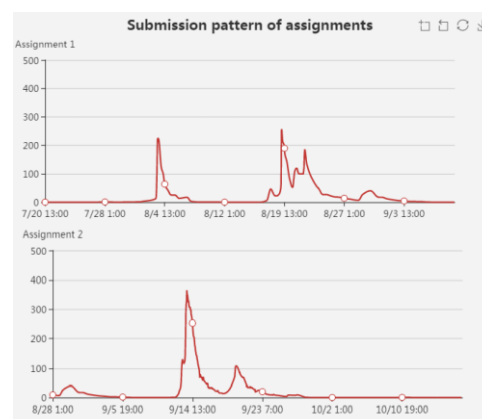Figure 5: Submission pattern of different assignments (1)

Figure 6: Submission pattern of different assignments (2)

(5) If we have an average mark for a particular assignment, what do we need to display (e.g:

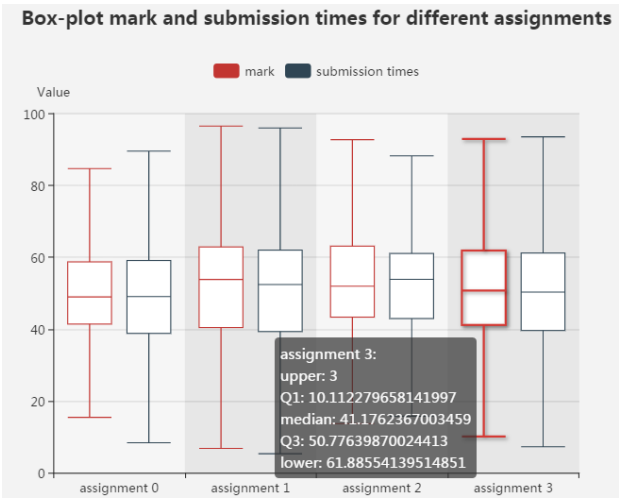average, medium, mode, five statistical references, standard deviation, etc.)?

Figure 7: Box-plot mark and submission times for different assignments

(6) If a student always submits assignments early and submits one assignment late, what's the reason behind that?

(7) Can you try to establish the routine of a student? If the routine changes, something must have happened.
Figure 8, 9, 10 establish the routine of a student. Which figure do you think is easier for you to compare and read?
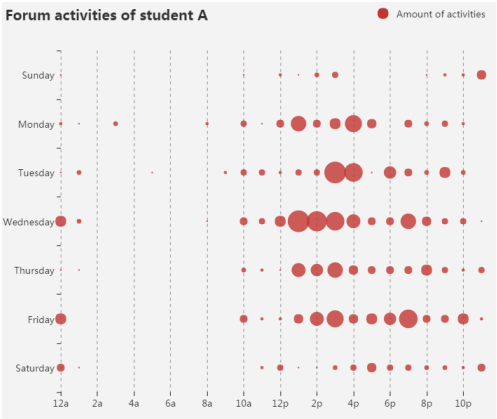

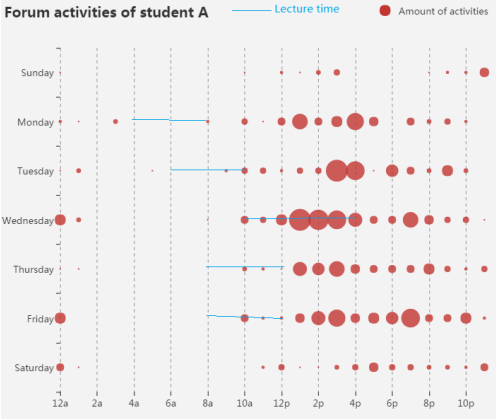Figure 8: Routine of a student (1)

Figure 9: Routine of a student (2)
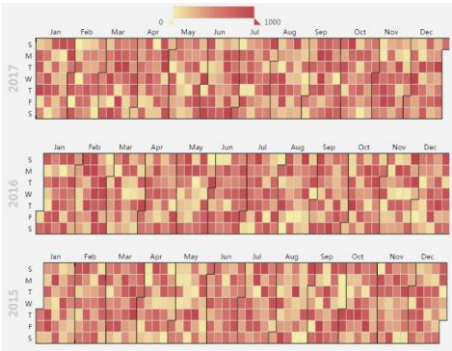

Figure 10: Routine of a student (3)

Figure 11: Routine of a student (4)

(8) For group assignment, can you bring out submission patterns and look for a certain group and work out how many somebody has contributed?
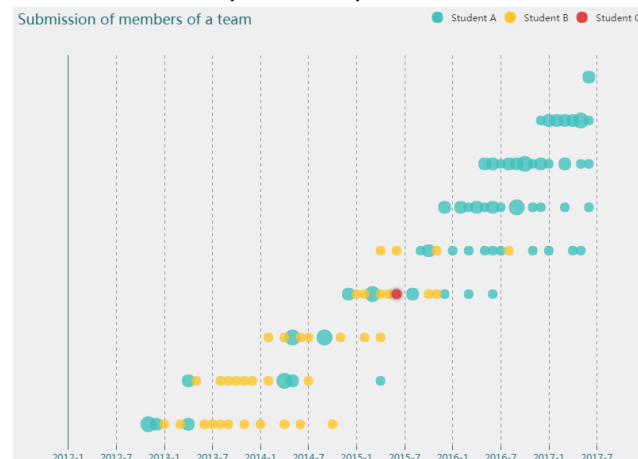

Figure 12: How many somebody has contributed for group assignment

(10) From the start time of an assignment, one group starts working within a week, another group starts working within a month, the third group starts in the last week. Are they significant different groups from each other in statistical terms?
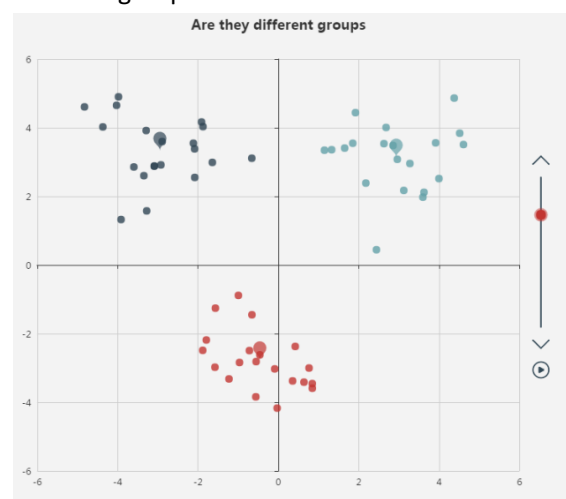

Figure 13: Are they different groups (cluster analysis)

Please provide the questions you want our application to answer and provide your suggestions, recommendation and preferences of the graphical representation. Your ideas will be taken seriously and will have a chance to appear in our application.