

Elementary School Math Tutor

Vision:

Fallingwater Elementary School would like to improve the performance of its first-grade students in the area of mathematics. You are to develop a program that will help students learn mathematics at the first-grade level.

Typical Usage:

Students will use the system for 10-30 minutes at a time. They must be able to use it independently, although there will be a teacher nearby who can offer occasional help and supervision. For example, it's ok for the instructor to log the student in, but the teacher can't sit with the student while they're using the program.

Keep in mind that some of a first-grade teacher's job is to manage the emotional and social development of the students (in addition to ensuring that students are attaining curricular outcomes).

Specifically, the first-grade students aren't mature enough to "just do the work". In other words, the program should be interesting for the students and should try to keep the students' attention.

On the teacher side, please keep in mind that a typical class will have 30 or more students in it. Because of that some thought must be given to ensure that the teacher can use the system to quickly accomplish things that relate to (or affect) the entire class.

Software Requirements:

You're free to design any activity that you want, but it needs to meet "Common Core" requirements for first grade mathematics education. You are expected to find the "Common Core" document(s) that describe expectations of 1st grade math instruction. Include a copy of this document in your materials so it's clear which document you're using.

The software must run on ASP.Net MVC, it must build on what you learned in BIT 285, and the website must be viewable via Google Chrome.

Program should be age-appropriate, both in terms of being interesting and fun for the kids to use and in terms of the content in the program.

The software must be easy for the students to use. The kids are young and some aren't literate yet (especially at the beginning of the year).

The software must be easy for the teachers to use. The teachers may not be technically inclined, and they're very busy with everything else they must do. They don't have a lot of time to get trained on this (nor much time in-class to fiddle with it).

The software must keep each student's records private from other students and/or casual users of the system. However, the teacher needs to be able to efficiently review information about the students.

Classroom Infrastructure:

The program that you write will be run on Windows desktop PCs that are located in each classroom. There's only about 4 computers for a class of 30 kids. The computers are about 3-5 years old, and the setup (if any) must be easy and simple (i.e., no requiring IT to install software). The computers are connected to the Internet and you can assume that reasonable bandwidth usage will be allowed.

