

OBJECTIVE

Create a system for teachers to put questions into video-game form, allowing students to learn on their own time. This template would allow teachers to easily incorporate questions and associated material (images, links, etc.) into the game. Question styles the game would handle include multiple-choice, true/false, fill in the blank, and auto-generating questions.

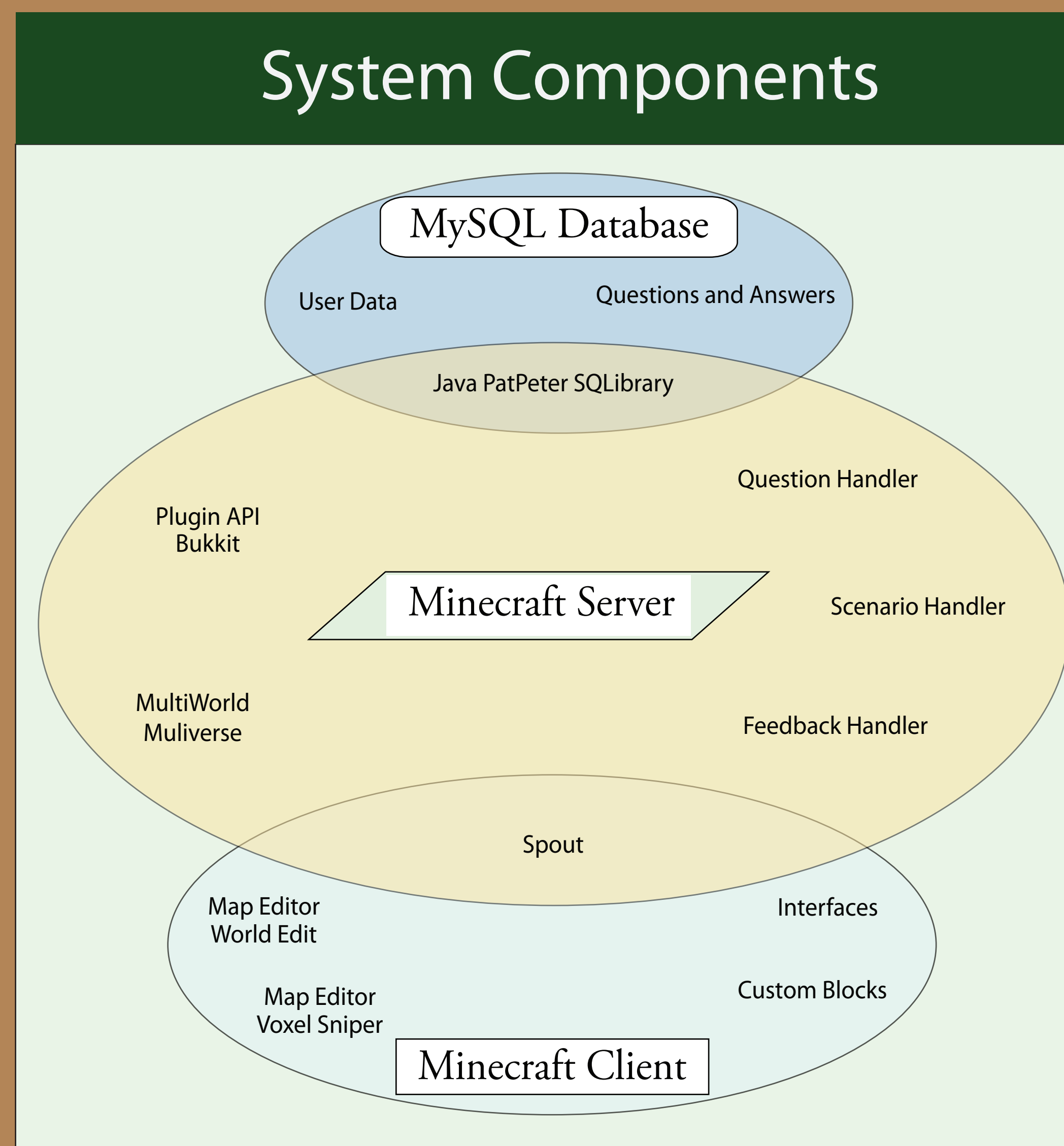
ABSTRACT

Today's learners expect to learn using technology and multimedia. While it is important that students still learn to accomplish some of these tasks without electronic tools, many rote memorization skills in particular could be greatly improved with help from an entertaining method of practice that is also readily available to the student.

Having a game with class content gives faculty members a way of specifying material that is more in tune with students' experience and interest to meet them where they are and support them in growing intellectually.

We investigated a learning game developed from the open source software Minecraft that incorporates relatively modern graphics for wider appeal and questions designed with game learning research methodology to ensure the game provides a learning experience while being fun.

System Components



References

- [1] Eagle M, Barnes T. 2009 March. Experimental Evaluation of an Educational Game for Improved Learning in Introductory Computing. SIGCSE Bull[serial online]. [cited 2011 Aug 25]; 41(1):321-325.
- [2] Mojang, 2012. Minecraft. <http://www.minecraft.net>
- [3] TeacherGaming, 2012. MINECRAFTEDU. <http://www.minecraftedu.net>
- [4] Natvig L, Djupdal A. 2004. Age of computers II-An Improved System for Game Based Teaching. Norwegian Symposium on Informatics. 2004 Nov 29-Dec 1; Stavanger, Norway: Curran Snapiates, Inc.

Development Platform Why Minecraft?

Minecraft is a hugely popular sandbox-style game that revolves around building and exploring, and has over 5,000,000 players. What drew us to the game was its already template-like nature. The game has simple 3D cube-based graphics, favoring automatically-generating fully-destructible environments and smooth controls over modern graphics. For developers this simplifies creating quality graphics, one of the most challenging aspects of video-game design.

Pros:

- Huge community support
- Tons of custom content (mods)
- Fairly small learning curve for players
- Open Source... and Fun!

Cons:

- No built-in system to handle questions
- No administrator interface
- Substantial learning curve for developers

Related Work

Age of Computers is a fully-functional gaming system with well-developed roles for students, teachers, and administrators, but with dated graphics and interfaces.

The computer game Wu's Castle demonstrates that an undergraduate student project can successfully aid classroom learning, but requires students to program.