Sandbox Revised

Multiplayer Coding

Justin Schuyler

Main Interface

The next slide illustrates Sandbox's main interface, which is designed to integrate with a web browser. Sandbox is resizable and allows developers to view live code in the white space above. The source code, resources, site map, console, chat, and other tools are organized as tabs below.

The chat window is persistent and shows that Sally Smith has joined the session. Her name is highlighted blue, which corresponds to the blue square on the chat toolbar.

The orange "+" sign to the right of Sally's marker allows the user to invite additional teammates.

Source   Resources   Site Map   Console   Chat

```
1.  <!DOCTYPE html>
2.  <html>
3.  <head>
4.    <title>Blank</title>
5.  </head>
6.  <body>
7.  </body>
8.  </html>
```

Sally Smith has joined

[Sally] Hi Justin!

Multiplayer Coding

Multiplayer coding involves rapid, cooperative development. Teammates interact with one another, discuss ideas, code, and troubleshoot together. While coding, each users' cursor is highlighted as well as their row. This creates a sense of awareness, letting everyone know who is editing what.

In the following slide, my cursor is working with the header on line 8. To find Sally, I can click on her marker from the chat window. Doing so shows me that she is adding to a menu on line 11.

Sandbox ✕

http://www.sandbox.com/new/

🟦 **Source**   🟪 Resources   🟦 Site Map   🟧 Console   Chat

```
1.   <!DOCTYPE html>
2.   <html>
3.   <head>
4.     <title>EdTech</title>
5.   </head>
6.   <body>
7.     <div id="headerWrapper">
8.       <h1|
9.     </div>
10.    <ul id="menu">
11.      |
12.   </body>
```

◀ Sally

Sally Smith has joined

[Sally] Hi Justin!
[Justin] Hello Sally. What are we working on today?
[Sally] A home page for the EdTech project.
[Justin] Sounds good. I'll start on the header.
[Sally] I'll work on the menu.

Real-time Results

As code is contributed, it appears in the live window above the Sandbox toolbar. There is no need to refresh the browser or save documents. This feature is designed to encourage experimentation and simplify the development process.

Any change made to the HTML markup or CSS styling is immediately reflected in the live window. That way, developers can code rapidly and experiment with different settings.

While users work, the chat window fades out and surrenders room to the rest of the interface. Clicking on or hovering over the chat for more than a second causes it to fade back in. New comments will also highlight the chat toolbar, notifying users of any updates.

Sandbox ×

← → C | http://www.sandbox.com/new/

Educational Technology

<u>Home</u>　　　　　Projects　　　　　Resources

🟦 **Source**　🟪 Resources　🟦 Site Map　🟧 Console　　Chat　　🟦 ➕

```
6.   <body>
7.      <div id="headerWrapper">
8.         <h1>Educational Technology</h1> |
9.      </div>
10.     <ul id="menu">
11.        <li><a href="home.php">Home</a></li>
12.        <li><a href="projects.php">Projects</a></li>
13.        <li><a href="resources.php">Resources</a></li> |
14.     </ul>
15.  </body>
16. </html>
```

Sally Smith has joined

[Sally] Hi Justin!
[Justin] Hello Sally. What are we working on today?
[Sally] A home page for the EdTech project.
[Justin] Sounds good. I'll start on the header.
[Sally] I'll work on the menu.

Real-time Results 2

JavaScript changes are handled differently. To avoid errors from incomplete or competing code, JavaScript execution is postponed and its source is kept separate between clients.

From the "Resources" tab, users can select blocks of JavaScript to include when they are ready. The icon next to "Resources" turns into a play/refresh button, allowing each client to load and execute JavaScript independently.

Educational Technology

Home   Projects   Resources

Source   ▶ **Resources**   Site Map   Console   Chat

☑ `<script src="js/jslibs/jquery.min.js"></script>`

☐ `<script src="js/lightbox/slideshow.js"></script>`

☑ `<script src="js/app_schuyler.js"></script>`

☐ `<script src="js/app_smith.js"></script>`

Sally Smith has joined

[Sally] Hi Justin!
[Justin] Hello Sally. What are we working on today?
[Sally] A home page for the EdTech project.
[Justin] Sounds good. I'll start on the header.
[Sally] I'll work on the menu.

Multiplayer Coding 2

If I want to distinguish my contributions from another user, I can simply click on their name. Doing that highlights their code in the source view as well as the corresponding elements in the live view.

A series of icons in the top right-hand corner of each highlighted view gives me control over that chunk of code. I can choose to edit, hide, or remove those contributions.

Educational Technology

| Home | Projects | Resources | ● ■ ▲ |

```
6.   <body>
7.     <div id="headerWrapper">
8.       <h1>Educational Technology</h1> |
9.     </div>
10.    <ul id="menu">                          ● ■ ▲
11.      <li><a href="home.php">Home</a></li>
12.      <li><a href="projects.php">Projects</a></li>
13.      <li><a href="resources.php">Resources</a></li> |   Sally
14.    </ul>
15.  </body>
16.  </html>
```

Sally Smith has joined

[Sally] Hi Justin!
[Justin] Hello Sally. What are we working on today?
[Sally] A home page for the EdTech project.
[Justin] Sounds good. I'll start on the header.
[Sally] I'll work on the menu.

Contextual Feedback

If I want to ask a question, make a comment, propose an idea, fix an issue, or any other feedback that would reference part of Sally's work, I don't have to explain what line of code I'm referring to. Instead, Sandbox has a feature that allows me to drag and drop pieces of code into the chat window. Doing so links my feedback to actual code, providing Sally with instant context.

The following slide demonstrates this concept as I drag and drop line 12 into the chat.

Sandbox

http://www.sandbox.com/new/

Educational Technology

Home   Projects   Resources

🟦 **Source**   🟪 Resources   🟦 Site Map   🟧 Console   Chat   🟦 ➕

```
6.   <body>
7.     <div id="headerWrapper">
8.       <h1>Educational Technology</h1> |
9.     </div>
10.    <ul id="menu">
11.      <li><a href="home.php">Home</a></li
12.      <li><a href="projects.php">Projects</a>
13.      <li><a href="resources.php">Resources</a></li> |
14.    </ul>
15.  </body>
16.  </html>
```

12.   `<li><a href="projects.php">Projects</a></li>`

◀ Sally

Sally Smith has joined

[Sally] Hi Justin!
[Justin] Hello Sally. What are we working on today?
...me page for the EdTech
projec...
[Justin] Sounds good. I'll start on the header.
[Sally] I'll work on the menu.