Lesson 14: Design Mode in App Lab

Overview

Question of the Day: How can we use App Lab and Design Mode to create apps?

Students are introduced to the App Lab programming environment that they will use to build their apps. Students work through a progression of skill-building levels to learn how to use the drag-and-drop design mode of App Lab. They end the lesson by making a plan to adapt one of their Paper Prototype screens into App Lab, focusing on having unique IDs for each element.

Purpose

This lesson introduces students to the design mode interface of App Lab, and to the process of translating a paper prototype to digital. They'll use this as a tool to iterate on their paper prototypes. In today's lesson, they build up an exemplar app screen. In tomorrow's lesson, they will build a screen from their paper prototype, incorporating the feedback from yesterday's lesson.

Assessment Opportunities

1. **Assign roles and responsibilities to each team member when collaborating to create a digital artifact**

   Activity Guide "Screen Ownership": Check that all screens have been assigned an owner and that the division of labor seems reasonable.

2. **Select the appropriate input element for a given type of information**

   Code Studio, level 8: See rubric

Standards

Full Course Alignment

CSTA K-12 Computer Science Standards (2017)

- **AP** - Algorithms & Programming
- **CS** - Computing Systems
- **IC** - Impacts of Computing

Agenda

Warm Up (5 minutes)

Objectives

Students will be able to:

- Assign roles and responsibilities to each team member when collaborating to create a digital artifact
- Select the appropriate input element for a given type of information

Preparation

- Print one copy of the Screen Ownership activity guide for each group
- Print one copy of the Screen Design activity guide for each student
- (Optional) Print one copy of the Model Screen Design activity guide for each group

Links

Heads Up! Please make a copy of any documents you plan to share with students.

For the teachers

- **CSD Unit 4 - The Design Process** - Slides
- **Design Mode** - Resource
- **Design Mode Elements** - Resource

For the students

- **Intro to Design Mode** - Video (**Download**)
- **Model Screen Design** - Resource
- **Screen Design (2021)** - Activity Guide
- **Screen Ownership (2021)** - Activity Guide

Getting Prepared
Journal

Activity (35 minutes)
Design Mode in App Lab

Wrap Up (5 minutes)

Teaching Guide

Warm Up (5 minutes)

Getting Prepared

Distribute: Make sure each team has their prototypes available. They should also have the Paper Prototypes User Testing Activity Guide from yesterday.

Journal

Prompt: What is at least one change you would make to your paper prototype based on feedback from yesterday? You can use your Activity Guide from yesterday to help remind you of the feedback from user testing.

Discuss: Have students journal individually, then share in their groups. Encourage them to keep coming up with ideas even after everyone has shared. Then, invite one person from each group to share at least one change to their app.

Discussion Goal

Goal: This is an opportunity for teams to remind themselves of the activity they completed yesterday, and synthesize the feedback into actionable steps. This brainstorm will lead into the activity they will complete today.

Remarks

> Now that we've done a first round of testing and we know what changes we need to make, it's time to build a new prototype. But this time, instead of a paper prototype, we're going to make a digital prototype! Today we'll learn how to use AppLab to design apps, then tomorrow we'll turn our paper prototype into a digital prototype!

Question of the Day: How can we use AppLab and Design Mode to create apps?

Activity (35 minutes)

Design Mode in App Lab

Display: Show the Model Screen Design activity guide. This image will also be available to them during the level progression, and can optionally be printed for each team to use as a reference.

Teaching Tip

Students will be using App Lab to create a simple prototype for their app. Students who want to go further in making their apps functional can learn more about App Lab, watch demo videos, and work through tutorials at **https://code.org/educate/applab**.

Remarks

> Before you start working on designing your own apps in App Lab, we're all going to work on converting this paper prototype into AppLab first. Look over the prototype to make sure you know what you are building toward. Notice that most of the elements on the screen are labelled - we're going to use these same exact labels when creating these elements in App Lab

Video: Watch the AppLab - Design Mode video as a class. This video introduces the design mode interface that students will use for the rest of the unit. Today's lesson focuses just on the drag-and-drop design elements; the Events in AppLab lesson focuses on the coding elements

1 **Video: Intro to Design Mode**

Code Studio: Have students log into their computers and open Code Studio. If you've used Pair Programming in previous units, consider having students use it throughout these levels.

2-5 **Build a Screen**

2 3 4 5

6-8 **Finish a Screen**

6 7 8

Circulate: Monitor students as they complete the levels in Code Studio. As they progress through the bubbles, they should be recreating the Recycle Finder app. The last level of this lesson has students check in with you for next steps.

Screen Ownership

Distribute: Give each team a copy of the Screen Ownership activity guide

Teaching Tip

Reducing Printed Materials: This Activity Guide can be completed as a journal activity. Classrooms that have chosen the online option may also do this activity on a separate sheet of paper, or use an online drawing tool to design the screen.

Do This: Have groups look through their paper prototypes to identify all of the unique screens they will need to create. From there, they can divvy up screens evenly among the group members and document it on the chart. If there are more screens than students, have groups consider the following factors when dividing up content:

Teaching Tip

Rules for Screen Names: For each screen, groups should assign a short and clear screen name. This name will be used in App Lab to identify the screen, so they should contain no spaces or special characters.

- Is every page *actually* unique, or do some represent the same page with slightly changed content?
- Are there similar pages that could be easily created by the same person?
- Are there multiple simple pages that could be grouped together?

Remarks

> Now that we've practiced using App Lab and divided up our screens, it's time to plan what our screens will look like in App Lab. We will start this process today and finish it tomorrow. One of the most important steps is planning your IDs for each element. Just like in the Recycle Finder app, each ID will also have a prefix that helps identify which screen it's on.

Distribute: After students have divided up their screens, distribute a Screen Design activity guide for each screen in the app. If a student is completing multiple screens, they will have multiple activity guides. Students can use this activity guide to sketch out their design and document the IDs for each design element.

Screen Design

Do This: Have students complete the Screen Design activity guide, listing the feedback they plan to incorporate from yesterday's tests and generating the IDs they plan to use once in App Lab. Students should work on this up until the end of the class period. Depending on the number of screens each student has, they may not finish this before class ends and will continue tomorrow.

Circulate: Monitor students as they plan their screens, checking that they are giving meaningful IDs to each of their elements. Make sure they are also including the screen name as a prefix for each ID. This step is important for the Linking Prototype Screens lesson, where students will be importing elements from each other's apps - if two elements have the same ID, the import will fail. Being vigilant about this requirement now will save time and frustration later.

Wrap Up (5 minutes)

Collect: Collect all the materials from each team in a safe storage location.