

Lesson 4: Lists Make

Overview

Using Programming Patterns and a step-by-step approach students make their own version of a Reminder app. At the beginning of the lesson students are able to explore a working version of the app. They are then given the design elements of the app but begin with a blank screen. Students use an Activity Guide to go through the high level steps they should use to develop their app but leaves it to them to decide how to write the code. At the end students submit their apps which can be assessed using a provided rubric.

Purpose

This lesson is an opportunity for students to take on the "blank screen" and build the code that runs an app entirely from scratch. Guidance provided throughout the lesson helps students break down the large task of "building an app" into more incremental steps that they can use on future projects, including this unit's final project and the Create PT.

Standards

Full Course Alignment

CSTA K-12 Computer Science Standards (2017)

- **AP** - Algorithms & Programming

Agenda

Lesson Modifications

Warm Up (5 minutes)

Activity (35 minutes)

Build the Reminder App

Wrap Up (5 minutes)

Assessment: Make Project

Objectives

Students will be able to:

- Implement programming patterns with lists to develop a functioning app
- Recognize the need for programming patterns with lists as part of developing a functioning app
- Use debugging skills as part of developing an app
- Write comments to clearly explain both the purpose and function of different segments of code within an app

Links

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

For the teachers

- **CSP Unit 5 - Lists Loops, and Traversals** - Slides

For the students

- **CSP Lists Make - Reminder App** - Activity Guide

Teaching Guide


Lesson Modifications



Attention, teachers! If you are teaching virtually or in a socially-distanced

classroom, please read the full lesson plan below, then click **here** to access the modifications.

Warm Up (5 minutes)

 **Discuss:** *Imagine you want to build an app for reminders. What information do you think would be stored in a list?*

Discussion Goal: Students may struggle with this question. It's ok if they don't get it right away. The goal is to prime their thinking before they look at the sample app.

Sample Answer: The reminders could be stored in a list.

Remarks

For the past few days, we've learned a lot about using lists to help apps keep track of information. In today's Make Project you'll be practicing using lists and programming patterns with lists to create a functioning Reminders app.

Activity (35 minutes)

Build the Reminder App


Teaching Tip

Supporting Students: While students are working on their apps, circulate the room and check in with students who need a little help. Encourage students to collaborate and discuss bugs with each other.

Debugging: Review with students steps they can use to debug if they get stuck:

- Run the code on turtle mode
- Add the variables to the watcher
- Explain the code to a friend

Group: Make a determination as to whether this project will be completed in pairs or individually. You may even choose to let students decide.

 **Do This:** Have students explore the working Reminder App in Level 1.



Try the Reminders App

If students are not working in pairs they should still discuss the discuss with a neighbor.


 **Discuss:**


- *How many lists do you think are needed to make this app work?*
 - Only one list is needed. It stores all of the reminders.
- *What programming patterns with lists do you think you'll need to use?*
 - This app uses the List Scrolling pattern.

Remarks

Now let's build the this app. The screen has been set up for you - it's your job to add the code!

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 **Do This:** Direct students to level three where they complete the Reminder App. An optional Activity Guide is provided if students would like guidance in creating the app. The most relevant programming pattern is displayed on a slide. Review this pattern quickly with students, if needed.

 **Submit:** Encourage students to check the rubric on the last page of the Activity Guide before submitting.



Make the Reminders App

Wrap Up (5 minutes)

💡 Teaching Tip

Maximize Work Time: The wrap up is short to allow the maximum amount of time for students to complete the activity.

Remarks

 Awesome work today! Make sure to submit your project when you're done with it!

Assessment: Make Project

Use the rubric provided with the project to assess student projects.