MY PIANO: PART 3

START HERE

In this activity, you will learn how to use a procedure to manage the blocks of all the piano keys.
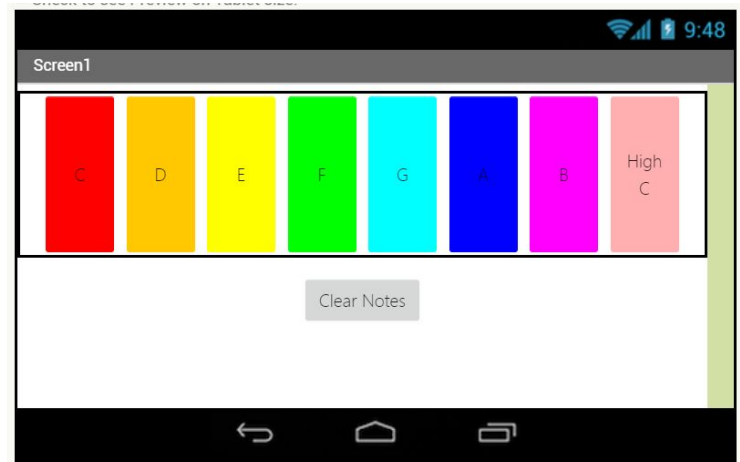
1 Go to the MIT App Inventor website (http://ai2.appinventor.mit.edu) and click the **Blocks** button to go to the Blocks Editor.
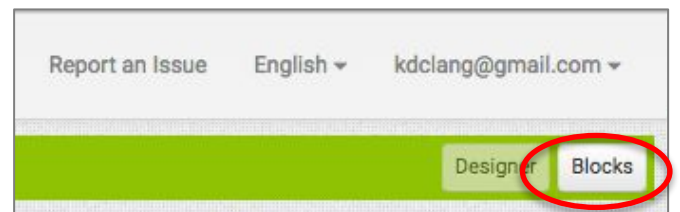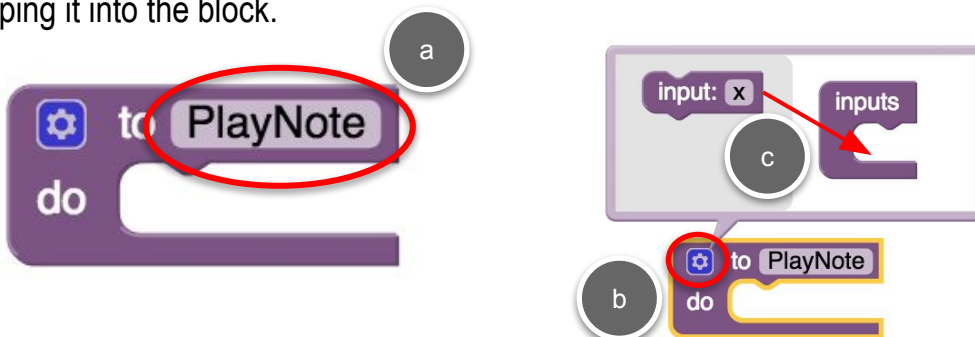
Because the code blocks for **CNote.Click** and **DNote.Click** are so similar, we are going to make a procedure to play the notes.

2 Click on **to procedure** in the **Procedures** Drawer, then drag out a **to procedure** block.
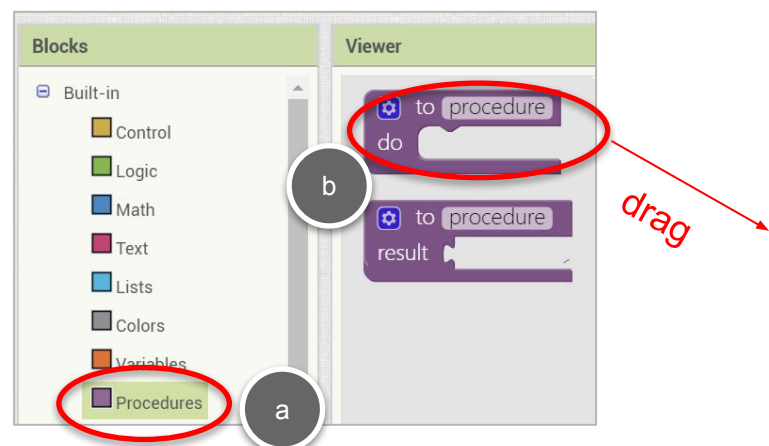
3 Change the name to **PlayNote**. Add an input by clicking on the blue circle and snapping it into the block.
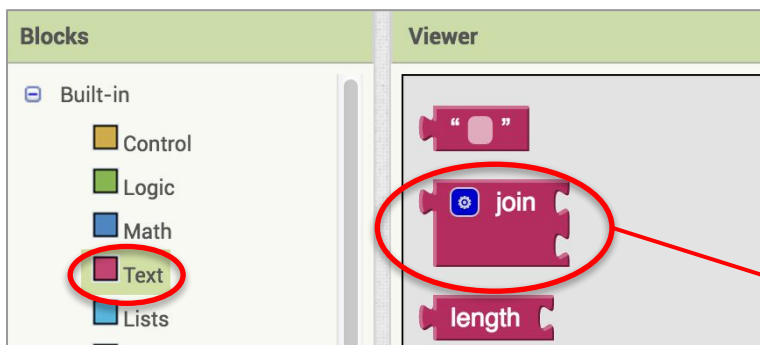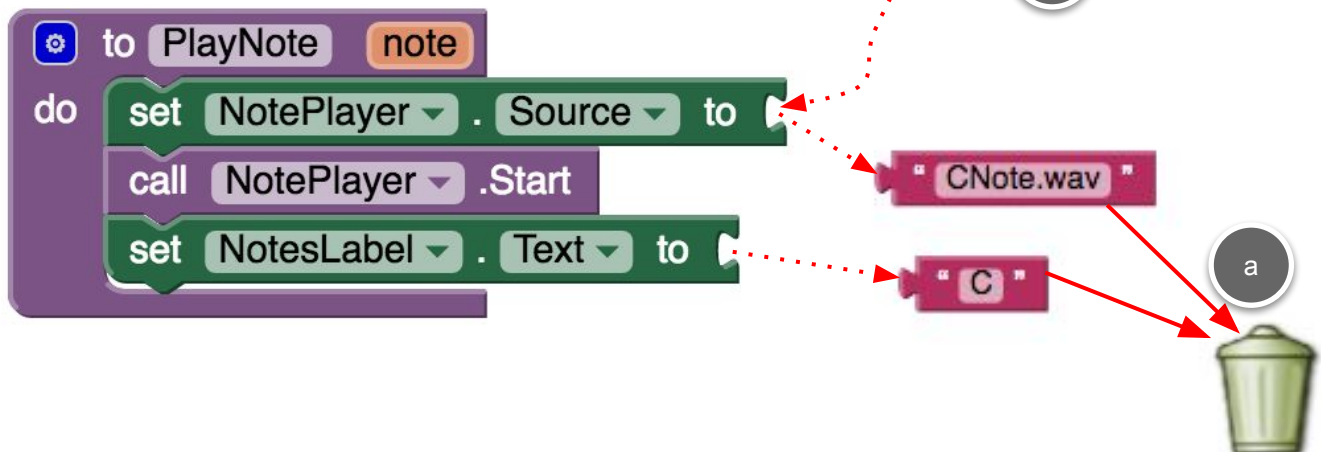
WRITE A PROCEDURE

4 Then, rename the input "**note**".

5 Drag the code inside the **CNote.Click** block to the new **PlayNote** procedure Block.

6 We want to be able to have different .wav filenames, based on the note, so drag out a **join** block from the **Text** drawer.

7 Delete the original text blocks and snap in the **join** block.
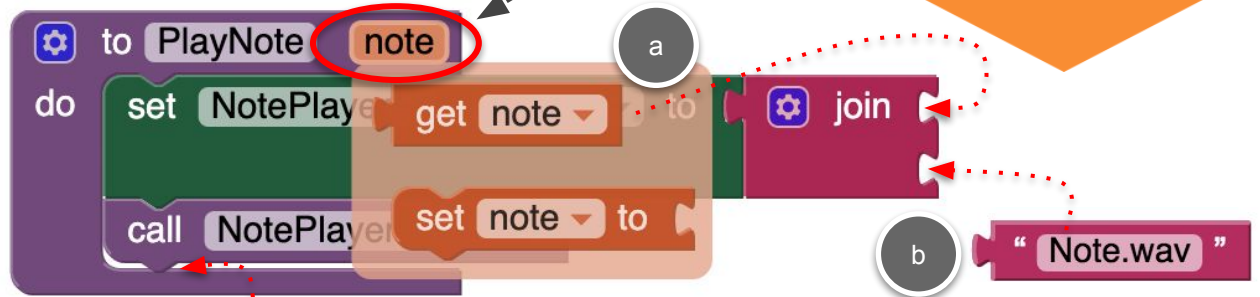
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PLAYNOTE PROCEDURE

8 The only thing that changes is the **note**, so join **note** and **"Note.wav"**.
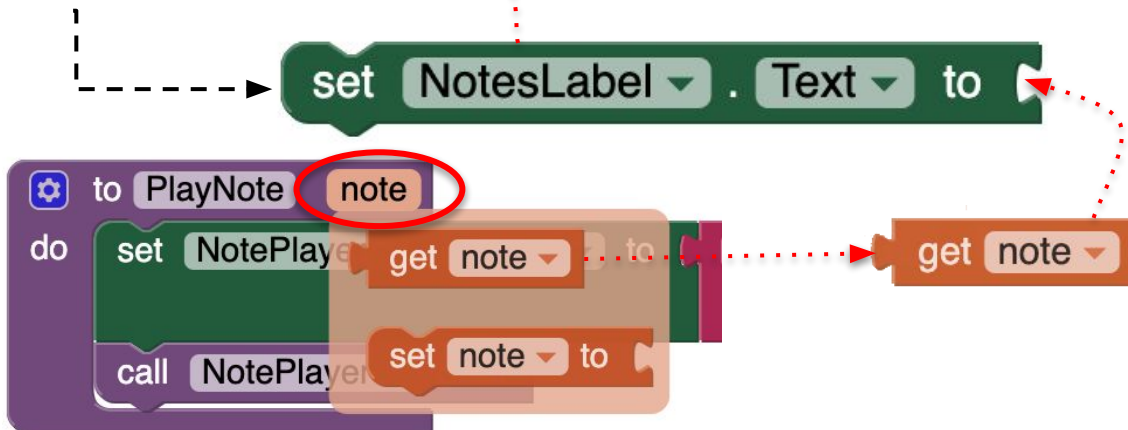
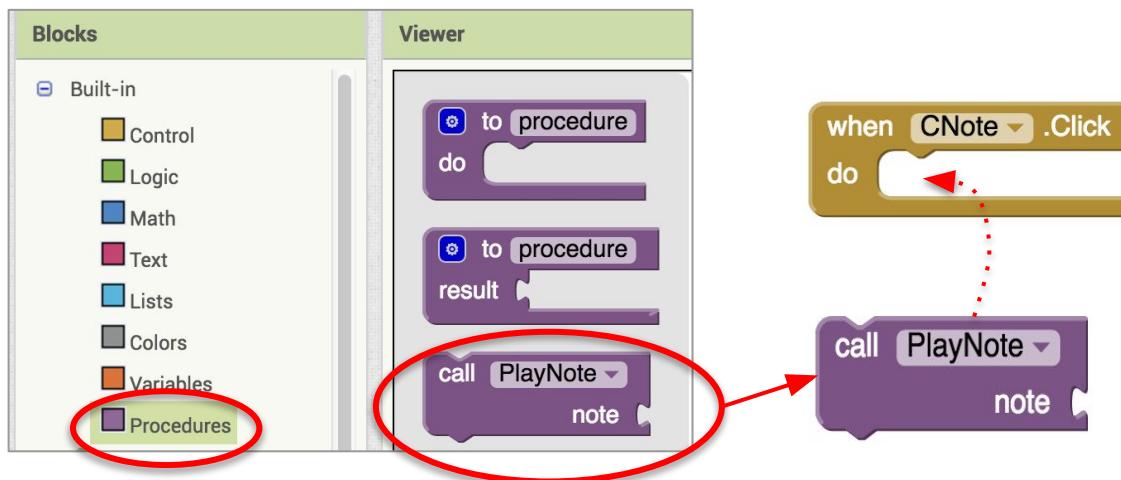Hover over **note** for **get note** to pop-up.

If **note** is "C", joining it with "Note.wav" makes "C"+"Note.wav", or "CNote.wav", the name of the sound file.

9 And set **NotesLabel.Text** to **note**.

10 Drag out a **call PlayNote** block from the **Procedures** drawer and add to **CNote.Click** so that the PlayNote code runs when the C note is pressed.
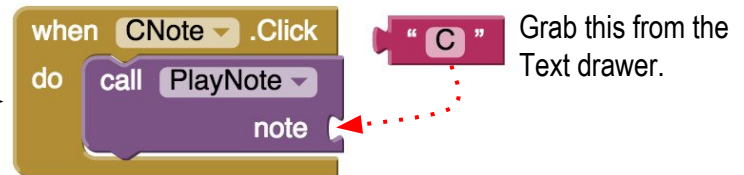
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CALL THE PROCEDURE

Input parameters are **"passed"** to the procedure.

11 Complete the puzzle piece and pass "**C**" as the note to **PlayNote**.

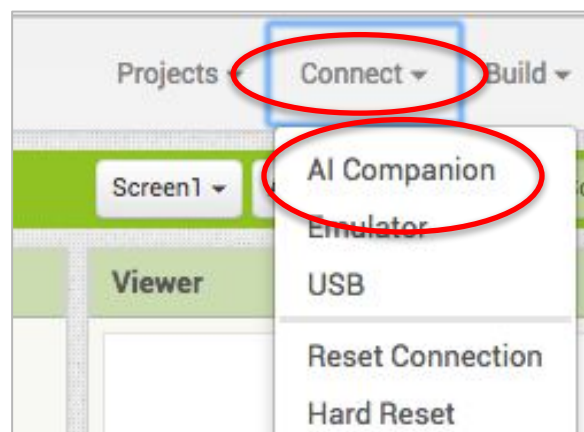when CNote .Click
do call PlayNote
note

"C" Grab this from the Text drawer.

12 Do the same for **DNote.Click.**
Delete the code blocks that were in **DNote.Click**, and replace them with a call to **PlayNote.**

when DNote .Click
do call PlayNote
note

What goes here?
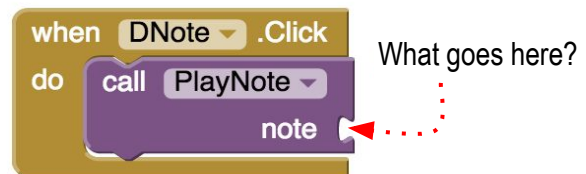
13 Add **.Click** event blocks for all the other note buttons, and call **PlayNote** with the correct note for each button.

when ENote .Click
do

call PlayNote
note

when FNote .Click
do
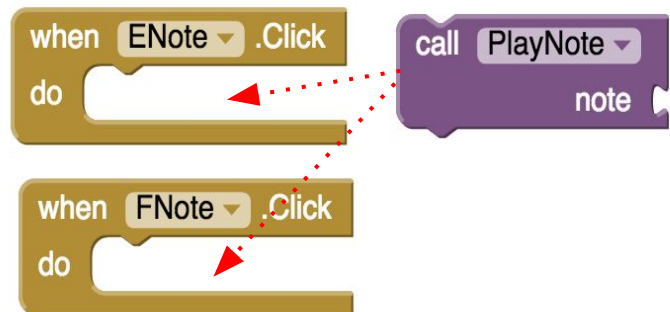
14 Test your app with the MIT AI2 Companion to make sure you can play all eight notes and see the correct notes displayed.

Projects   Connect ▾   Build ▾

Screen1 ▾

AI Companion
Emulator
USB

Viewer

Reset Connection

Hard Reset

MIT
APP INVENTOR

4

CHANGING THE APP

Let's make a change to our app.
Instead of just displaying the current note, let's display
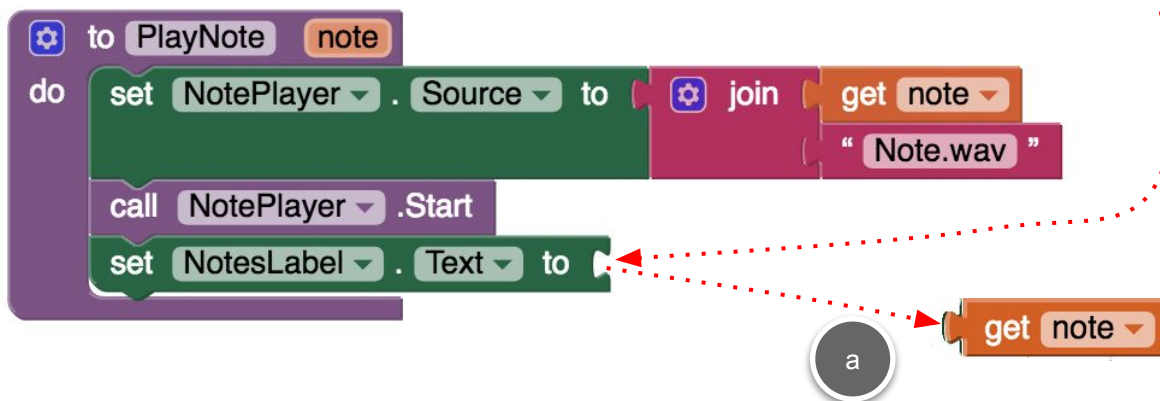*all* the notes pressed in sequence , like "**A C C C D E F**" etc.

By using a procedure, we can update our app in one place, instead of having to update all the Click event blocks!

15 In the **PlayNote** procedure, let's update
set NotesLabel.text so it uses a **join** block. Add a
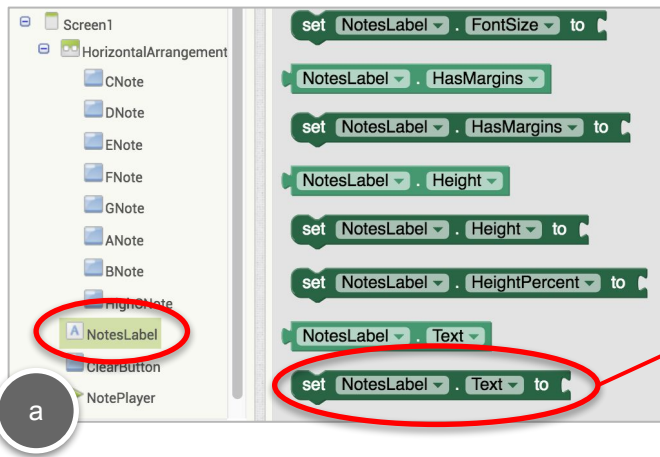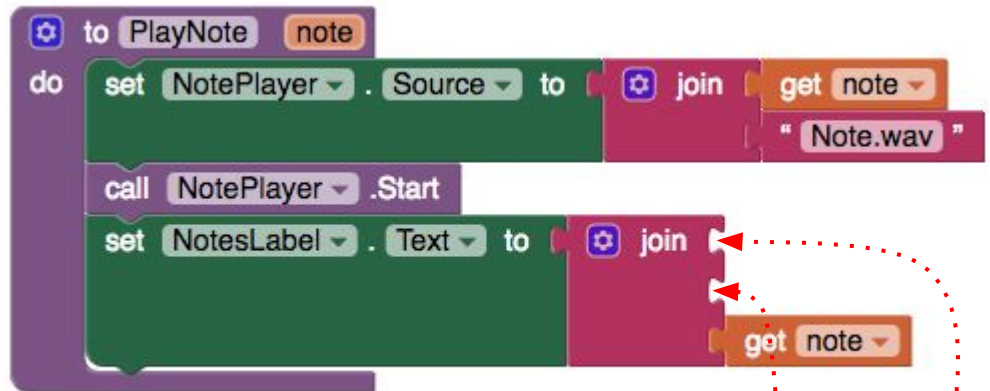third string to the **join** block.
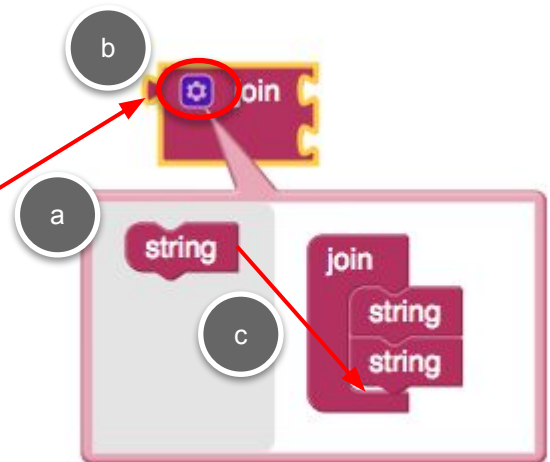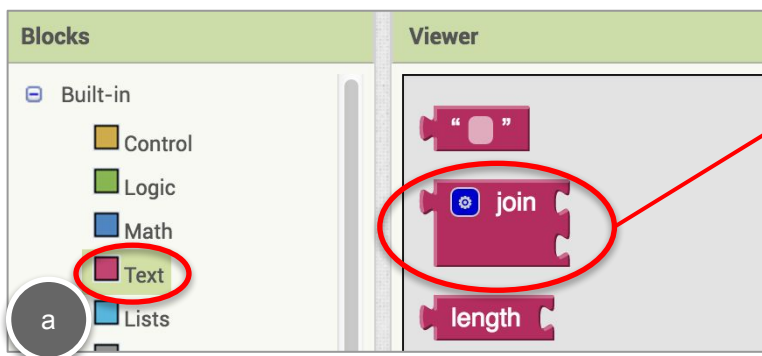
16 Move **get note** out and replace it with the **join** block.

COMPLETE THE JOIN

17 Add **NotesLabel.Text** and a Text space block as the other two strings in the **join** block.
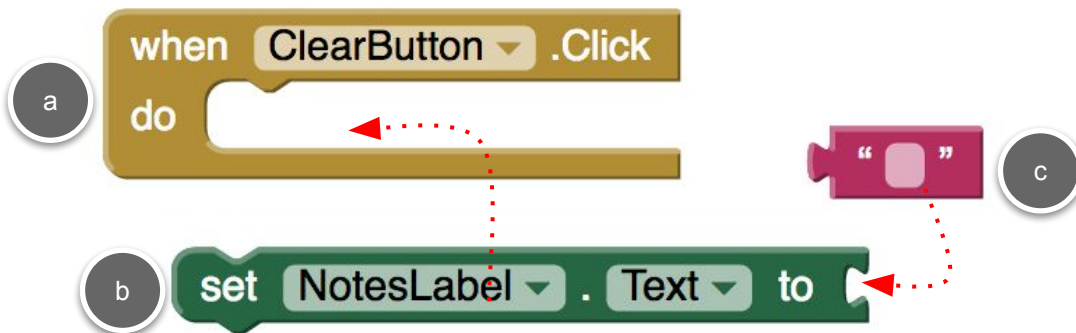
this is a space, not blank!

a

b

c

CLEAR BUTTON

Sometimes the string of notes can get too long, so let's code the Clear button to reset the string.

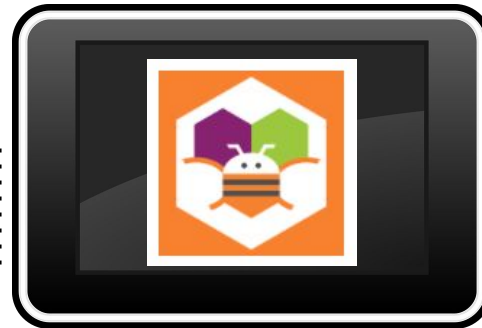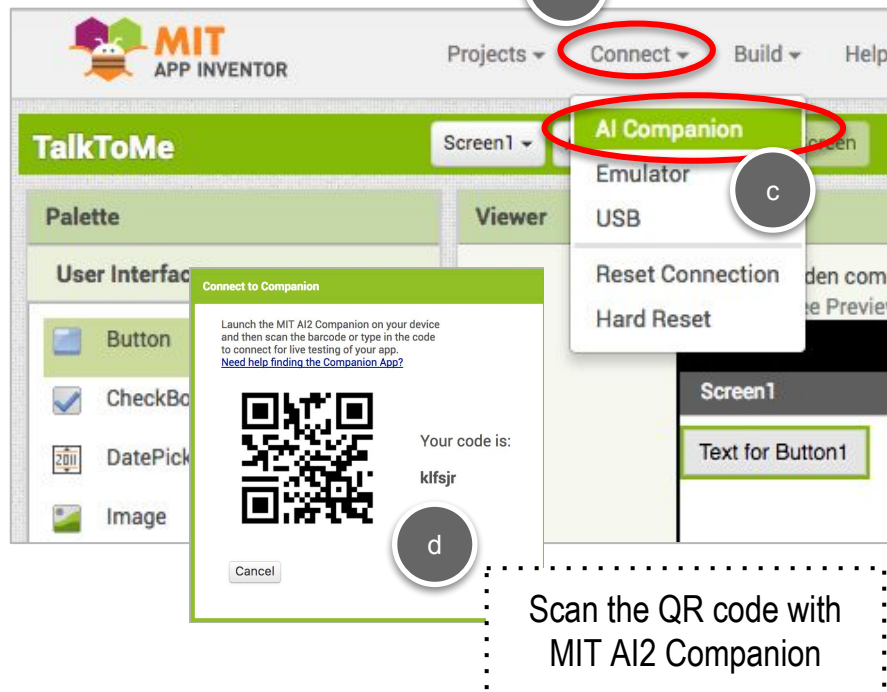**18** Drag out the **ClearButton.Click** block and clear the **NotesLabel**.

a

b

c

TESTING!

19 Now test your app on your tablet!

Start MIT AI2 Companion
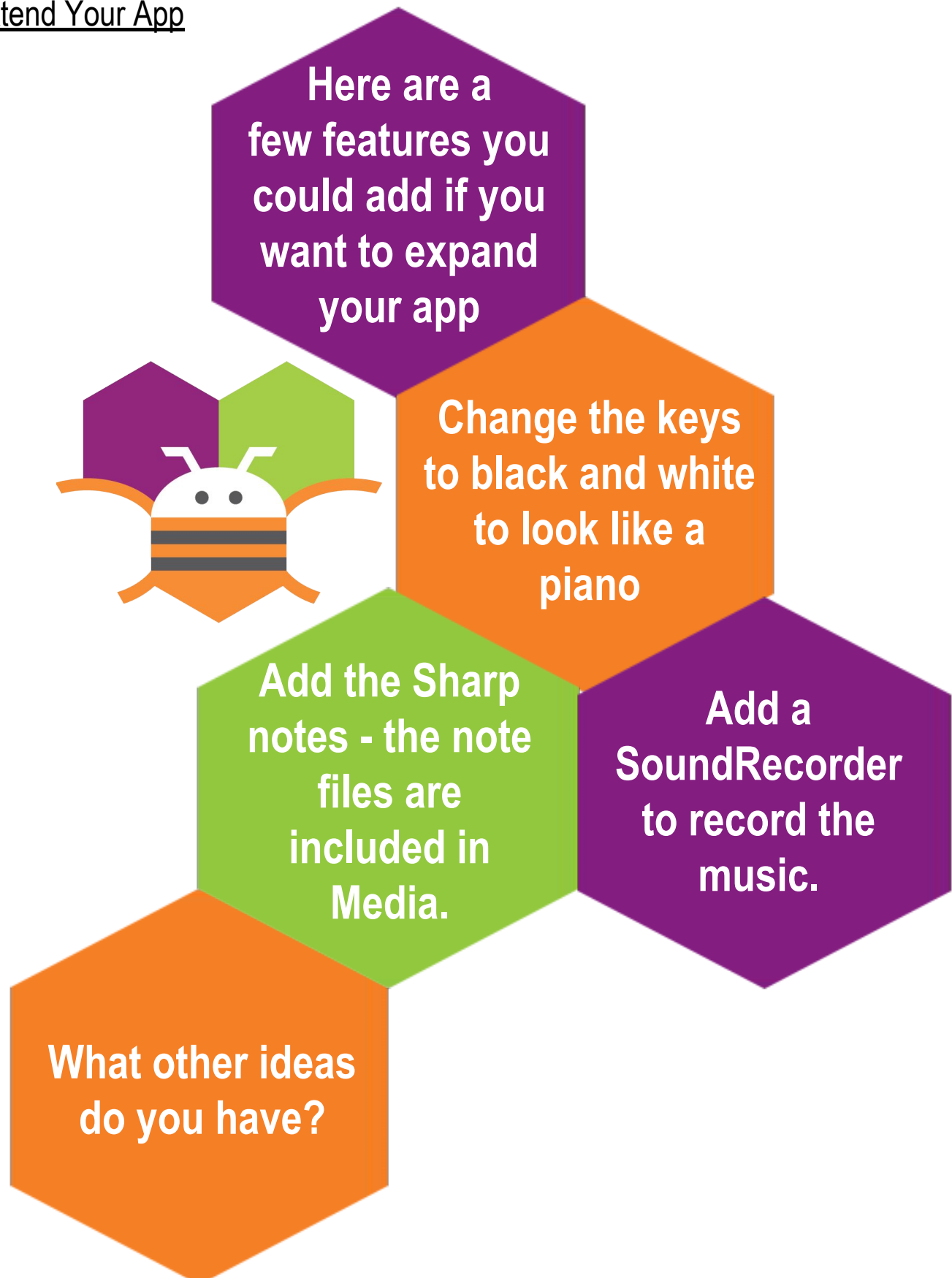on your tablet
a

b

Scan the QR code with
MIT AI2 Companion

20 Play with your piano. Try to play all the "keys". You should hear the corresponding notes, and they should also appear in **NotesLabel**.

Extend Your App

Here are a few features you could add if you want to expand your app

Change the keys to black and white to look like a piano

Add the Sharp notes - the note files are included in Media.

Add a SoundRecorder to record the music.

What other ideas do you have?

COMPUTATIONAL THINKING CONCEPTS

The following are the Computational Thinking Concepts learned in Part 3.

My Piano
1. Naming
2.   Abstraction   and   Modularization   (Procedures)