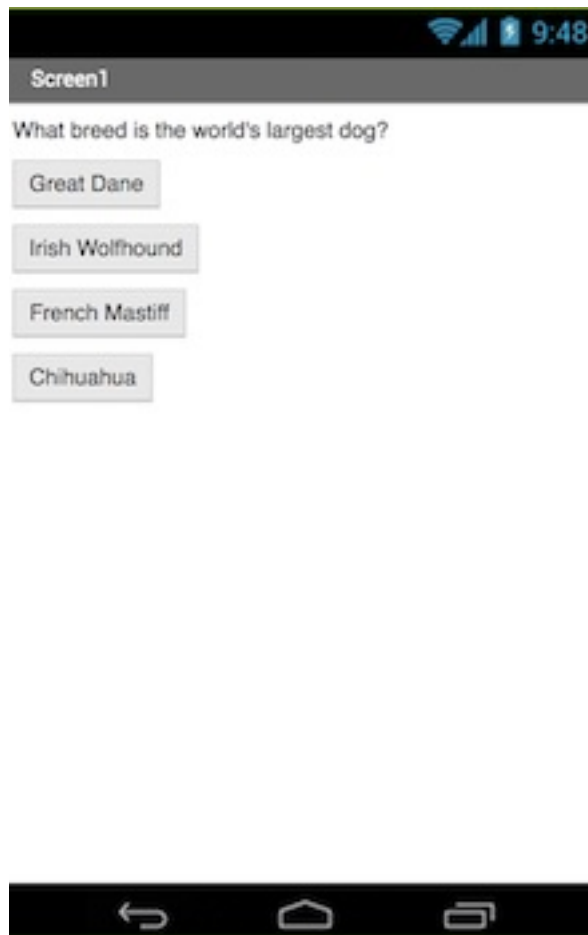


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- 1 These cards are going to introduce you to App Inventor. You're going to get the chance to:
 - o learn to build apps for Android phones and tablets
 - o build a quiz that keeps score as the player goes through it
 - o use any questions and answers you like, maybe about your favourite band, a sport you play, movies or a tv show you love. I'm going to do mine on dogs (I like dogs).
 - o You'll end up with something that looks like this (though you can play around with colours and adding images to brighten it up if you like!).



- 2 If you want to follow along with me, you're welcome to, if not then wherever I have a dog themed question, you'll have to come up with your own question, the right answer, and some answers that sound right! If you're going to make your own quiz, have a think about that now and maybe brainstorm out some ideas with the other Ninjas in your Dojo about what kind of questions you should have.



3

Once you've learned these techniques, you can apply them to create more than just a quiz! These same coding tools can be used to make a complete interactive story, or to build a calculator, or a whole bunch of other cool apps.

- 1 Before you can do anything, you're going to need an account on the App Inventor website. Go to dojo.soy/appinv-start and then click on the "Create apps!" button at the top-right of the screen.



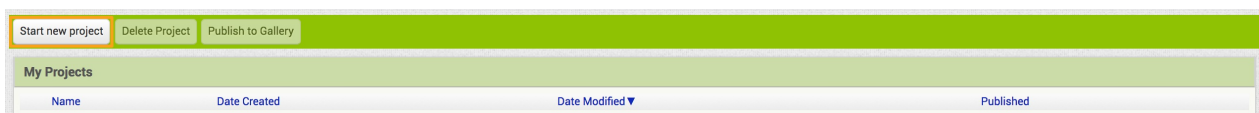
- 2 The website will ask you to sign in with a Google account. If you don't have one, you'll need to create one or use your parent/guardian's account.

- 3 Once you have signed in with a Google account, App Inventor will show you options to either setup an Android device (a phone or tablet) or an emulator (a fake, simulated, Android device) on your computer.

- 4 **You may need a mentor at your Dojo to help you with this next step!** Depending on what you have personally, or available at your Dojo, you may need to install the emulator, setup your own device or a Dojo device, or do nothing at all (if the Dojo already has devices set up). If you need to do either kind of setup, click on the appropriate link and follow the App Inventor team's instructions. Once you've done that, come back to the Sushi Cards.

- 5 Right! Now you're all set to go! Time to create your first Android app!

- 6 Go back to App Inventor in your browser and click on the "Start new project" button, at the top left of the screen.



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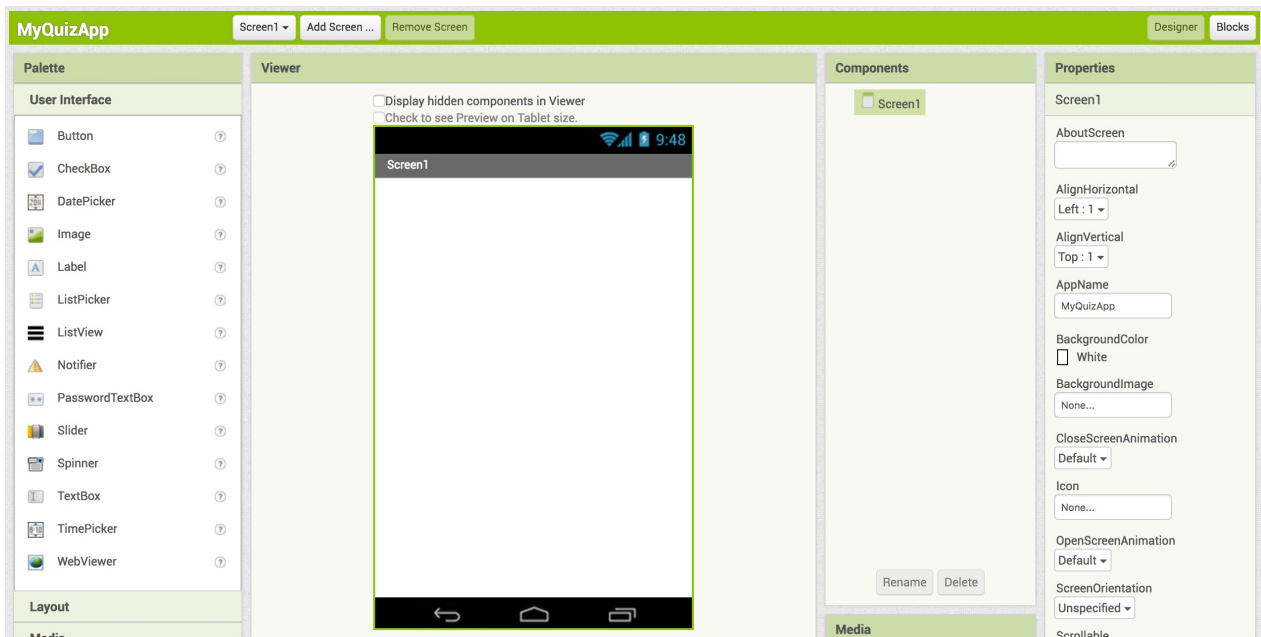
Getting setup

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7 Call your project "MyQuizApp" and click "OK"

Project name:

8 You'll see a screen like this one, and you're ready to get coding!

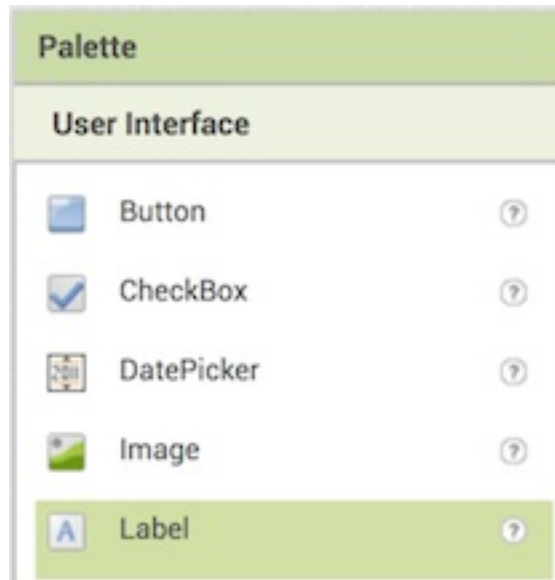


9 You can see that the App Inventor **Designer** view is broken into four key sections:

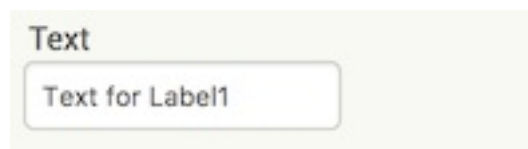
- o **Palette**—from which you pick the components you will use to build your app
- o **Viewer**—where you can see the app you are working on, rearrange and select components
- o **Components**—where you can see a list of the components in your app and their relationships to each other
- o **Properties**—where you can see and change the properties of the component you have selected at the moment

There are other buttons and even another view, but this is all you'll be using right now.

- 1 First, drag a **Label** component into the viewer to use for your question



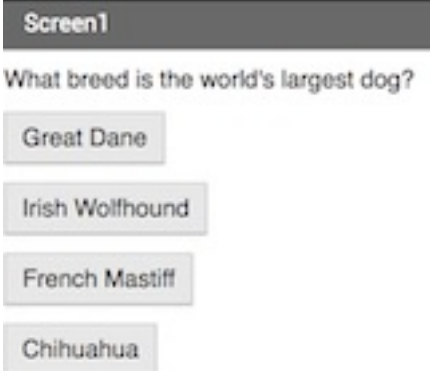
- 2 To make this **Label** have the question you want to ask in it first select it by clicking on it, either in the **Viewer** or the **Components** section. Now, in the **Properties** section, look for **Text** (you may have to scroll down)



Change the text in the **Text** box to your question. I'm going to go with "What breed is the world's largest dog?" but you can pick any question you like. Maybe ask what the first song a band released was, or the score in the last World Cup final!

- 3 Of course, what good is a question if the player doesn't have a chance to answer? Now it's time for you to add a few! Drag four **Buttons** from the **Palette** into the **Viewer**, then select each of them and change the **Text** in the **Properties** section so that one of them is the right answer and the other three are wrong answers. Be as tricky, or as funny, as you like with them!

4 What you end up with should look a little like this:



Screen1

What breed is the world's largest dog?

Great Dane

Irish Wolfhound

French Mastiff

Chihuahua

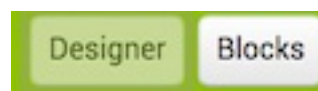
It's a Great Dane, by the way! Check him out: dojo.soy/big-dog

1 Android apps are made of **Screens**. You've created your first question on one **Screen** and you're going to want to add more. You'll put them on new screens, but you need a way of keeping score between those screens. On this card, you'll be adding a **TinyDB** database to keep the score in, and some code to mark the right answer!

2 First, in the **Palette** under **Storage** find the **TinyDB** component and drag it on to the **Viewer**. You won't see anything new there, but **TinyDB1** should appear in the **Components** section.



3 Now it's time to start putting together the code that will power your quiz! In the top right of the screen, click on the **Blocks** button to access the blocks view.



4 Just like the previous **Designer** screen, this **Blocks** screen has sections:

- o **Blocks**—where you pick code blocks
- o **Viewer**—where you drag your code blocks to assemble them

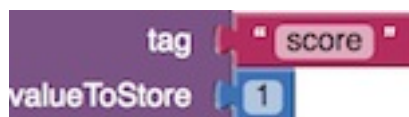
- 5 There are lots of kinds of code blocks, but you're just going to need a few of them for now. In the **Blocks** section, click on whichever button matches the right answer to your question. For me, it was **Button1**. Grab the `when Button1.Click do` block and drag it onto the viewer.



- 6 Now click on **TinyDB1** and choose the `call TinyDB1.StoreValue` block. Drag it into the last block and then go to the **Built-in** blocks grab the pieces from **Math** and **Text** to make it look like this:



- 7 Finally, update the text value to "score" and the number to 1, like this:



What you've done is stored the value **1** (as in one point for a right answer) under the label "score" in the **TinyDB** database. You can pull it back out and change it on later screens. This way, you can keep score throughout the app, no matter how many questions you add!

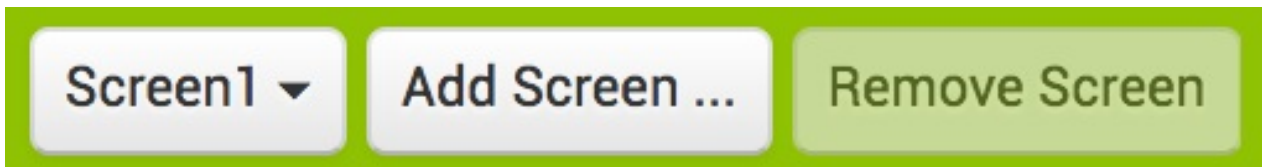
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Multiple questions

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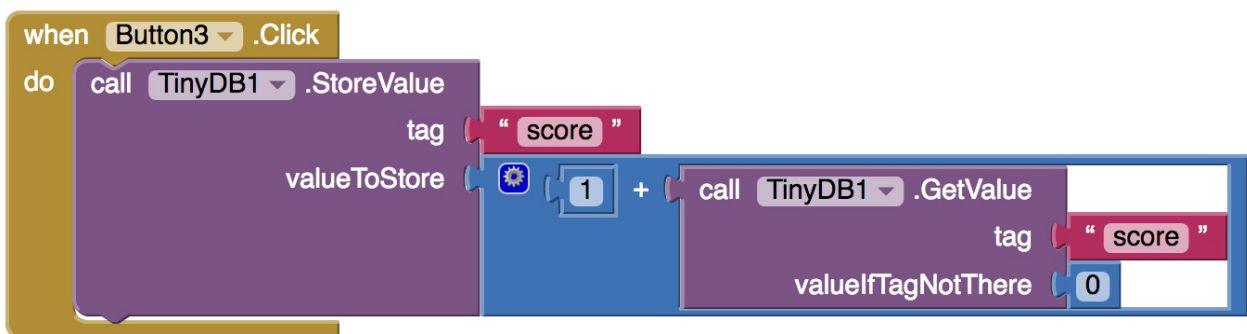
- 1 Now you've got your first question and you're giving the player a point for a right answer. To add another question, you'll need to switch back to **Designer** view and click on the **Add Screen...** button in the top menu bar.



- 2 Name your new screen whatever you like. I decided to be unimaginative and leave it as Screen2 for now!

- 3 Your new screen will be blank. Add a **Label** with your next question and four **Buttons** with answers, just like on the last screen. Drag a **TinyDB** on too so you can get that score value you stored! I've asked what dogs are most closely related to (it's wolves!) but you pick whatever works for the quiz you're writing.

- 4 In this case, my right answer was on **Button3** but the code to change the score has to be a little cleverer here, since you've first got to **get** the value of `score` before you can add 1 to it and **store** it. Also, since there will only be a value there if the player got the right answer on the last screen, you need to set a default value if there's nothing there. So add some code in the **Blocks** view that looks like this (remember to use the right **Button** for your right answer!):



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Multiple questions

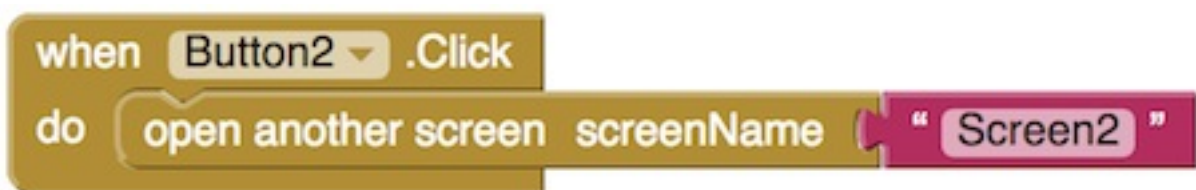
I'm learning: App Inventor

5 Great! But how do players get from **Screen1** to **Screen2**? You need to go back to **Screen1** and give them a way! To switch screens click on the **Screen2** button and pick **Screen1** from the drop-down menu.

6 Now, from the **Built-in** blocks, take the `open another screen screenName` **Control** block and a **Text** block and add them below the score code, like this (if you've changed your screen name, you'll need to use that where I've used "Screen2"):



7 Of course, that only works if **Button1** is clicked. You need to add a simpler block for all the other buttons (the wrong answers) like this:



8 By creating more screens, and adding these same kinds of blocks that point to the next screen each time, you can create an endless number of questions, and keep score throughout! Go make one or two more question screens following the steps on this card.

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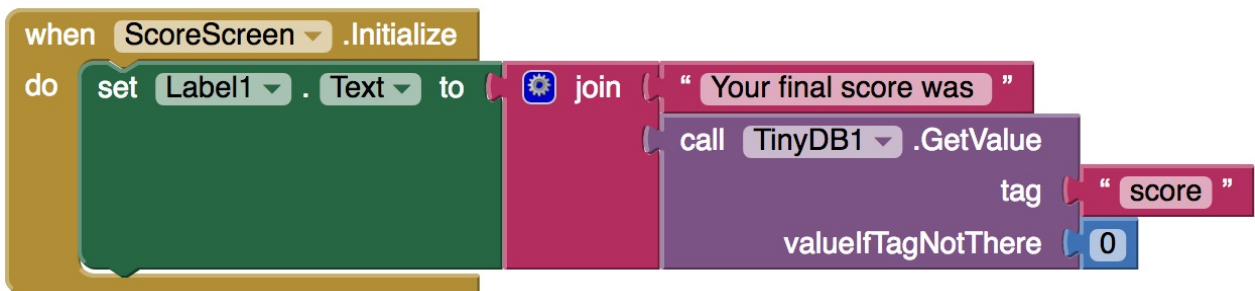
Wrapping up

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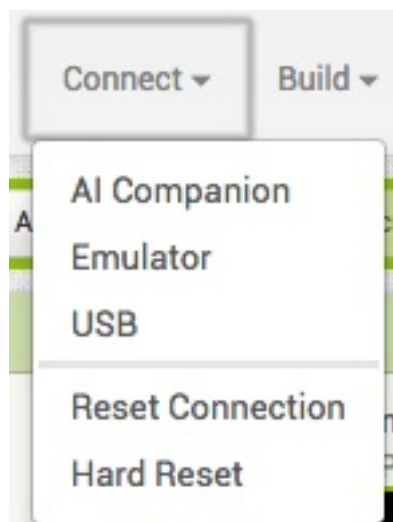
1 Now that you're finished adding questions and connecting screens, you need a way to tell the player how they did!

2 Create one more screen called "ScoreScreen" with nothing but a **Label** on it. You also need to drag the **TinyDB** on so you can access the score.

3 Now switch to the **Blocks** view and, using blocks from the **ScoreScreen**, **Label1**, **Text**, **TinyDB1** and **Math** sections, put this together:



4 You should now be able to go to the **Connect** menu and choose the emulator or other connection device you set up for testing your apps (you might need a mentor's help here!) and see how your code works right now!



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Wrapping up

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- 5 That's it! You've got a quiz that will keep score across all its pages, no matter how many you add, and will tell the player how they did at the end. Nice work! Check out the next card for a few ideas on what else you can do with what you know now!
- 6 Now you know how to build this quiz, what else can you do with this code? On this card, I'm going to give you a few ideas but you can always come up with something cooler.
- 7 What about an interactive story? You can use the same blocks you use to move from one screen to the next to move around screens based on users' decisions. You can create a story where, for example, you can decide to turn left or right at a fork in the road. If you map it out on paper first, you can create a complex branching story with loads of different characters, secrets, and endings!
- 8 You can build an app that gives information on different screens, connected with buttons, about anything you're interested in! You can try adding an **Image** component to the screen and uploading pictures too. I could build another dog-themed app, with pictures and information about different breeds!

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