Two Button Game

Play against a partner with simple clicker game over two devices

Essential Questions

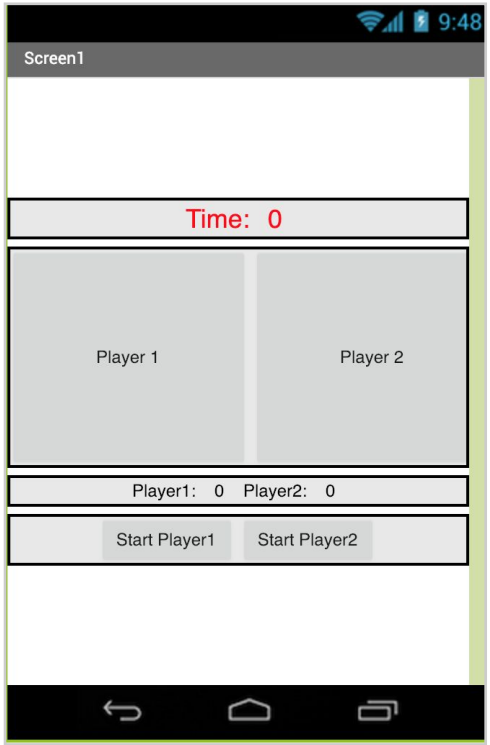
- How do online multiplayer games work?
- What could you use in App Inventor to communicate with other devices?

Objectives

1. Build a simple app that uses CloudDB.
2. Add multiple components and use Arrangement components to organize a complex user interface involving several components for an app.
3. Use the Clock component to add a timer to a game app.
4. Demonstrate understanding of CloudDB and storing and retrieving data from the cloud.
5. Work collaboratively to build and test a working app.

Lesson 1: User Interface

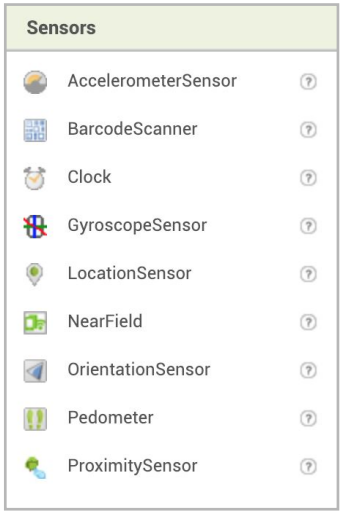
- Use **HorizontalArrangements** and **VerticalArrangements** to lay out the components how you want.
- Components are placed next to each other with **HorizontalArrangments**
- Components are place below each other with **VerticalArrangements**



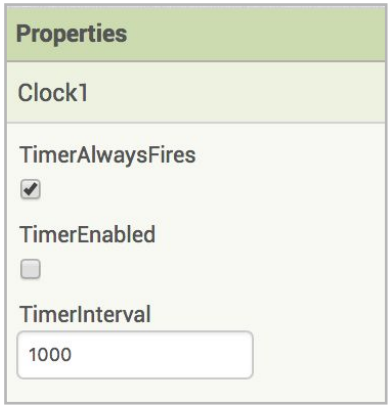
Lesson 1: Basic app on a single device
Complete Student Guide Part 1:

Lesson 2: Clock Component

- Found in Sensors drawer



- Properties



- ***TimerEnabled*** lets you enable or disable (start/stop) the Clock.
- ***TimerInterval*** specifies how often the Timer goes off (triggers th **Clock.Timer** event). It measures in milliseconds, so 1000 is 1 second.

Lesson 2: Clock Component

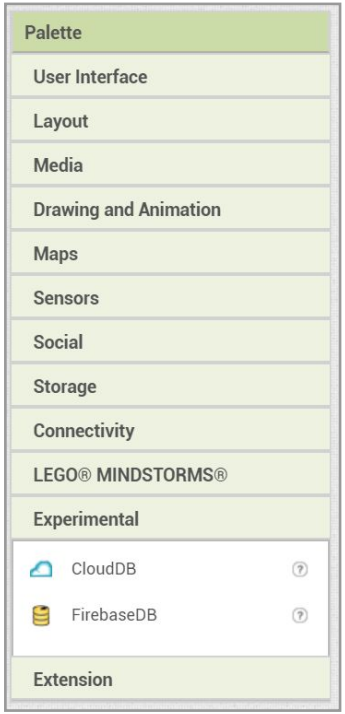
- **Clock.Timer** event block
  - Triggered every *TimerInterval*, so if *TimerInterval* is 1000ms, it triggers every second.
  - Can be used to countdown seconds in a game

Lesson 2: Countdown clock added to app

Complete Student Guide Part 2:

Lesson 3: CloudDB

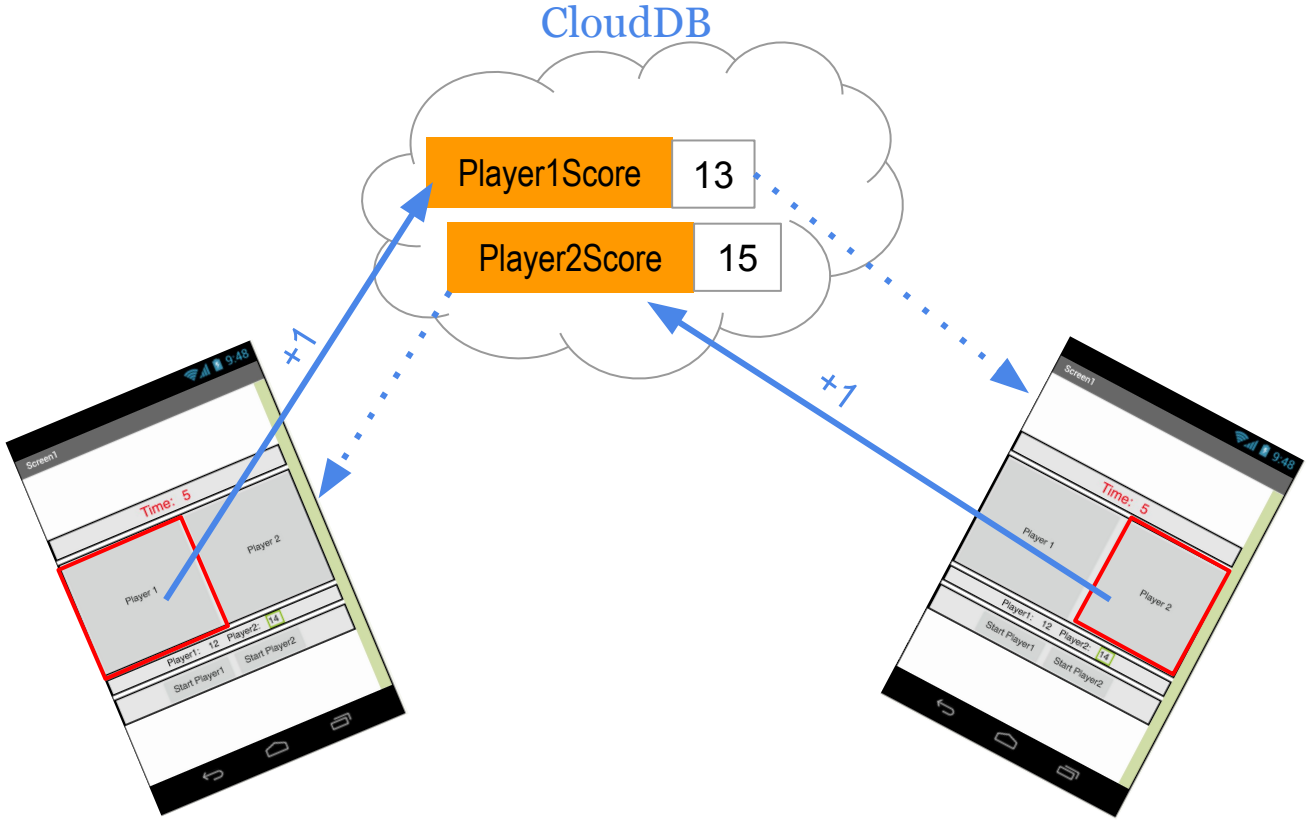
- **CloudDB** lets you store and retrieve data in the Cloud.
- One player can store their score in **CloudDB**.
- The other player will get notified of the new score.
- **CloudDB** is in the **Experimental** drawer.
- Similar to **TinyDB** but saves in the cloud instead of on the device.



Lesson 3: CloudDB vs other Storage

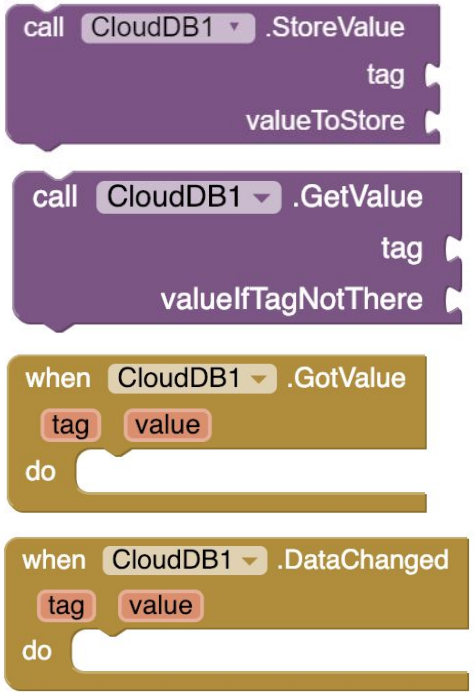
	Variable	**TinyDB**	**CloudDB**
Storing a new value	initialize global x set global x to	TinyDB.StoreValue	CloudDB.StoreValue
Getting a value	get global x	TinyDB.GetValue returns value immediately	CloudDB.GetValue requests value which is returned via CloudDB.GotValue event
Data Changed (Not by current user)	Not possible	Not possible	CloudDB.DataChanged event
Location of Data	app memory	Device (phone/tablet)	In the cloud (not local)
Accessibility of Data	available when app is running. Erased when app closes	Device user only	Anybody running the same app

CloudDB communication



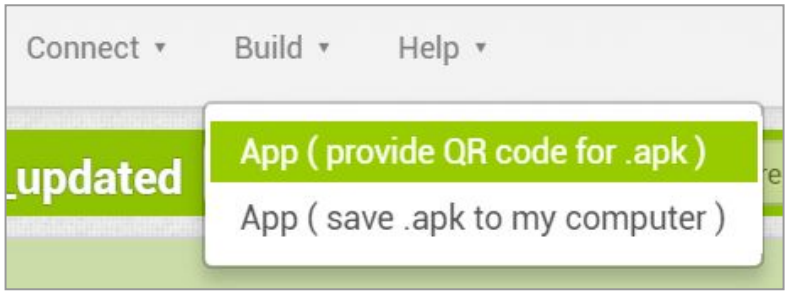
CloudDB Blocks

- Similar blocks to **TinyDB**
- **StoreValue** works the same, with tag/value pair.
- **GetValue** puts a request out to **CloudDB** for information on a tag.
  - Not instantaneous like TinyDB
  - Not on the device
- **GotValue** is triggered when **CloudDB** responds.
- **DataChanged** is triggered when anyone running the app stores new data in **CloudDB**
  - Good for rapid updates (in a game situation)



Testing

Because you are testing with multiple devices, instead of connecting with MIT AI2 Companion, build the apk (use QR Code option) and download to device to test.



Note this installs the app on your device.

Lesson 3: Unplugged Activity

Role Playing CloudDB communication

Lesson 3: App plays on multiple devices

Complete Student Guide Part 3:

Lesson 4:
Continue working or complete Student Guide: Challenge:

Vocabulary Words

Cloud

CloudDB

Tag

Value

Persistence

Clock

TimerInterval