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The College of Technology of The City University of New York

Introduction to AppInventor

Dr. José M. Reyes Álamo

CETech
COMPUTER ENGINEERING TECHNOLOGY

Agenda

- What is AppInventor?
- AppInventor setup
- Event Driven Programming
- Components and properties
- Events and event handlers
- Calling built-in function blocks
- Reference Documentation site

What is AppInventor?

- App Inventor is a visual "blocks" language for programming mobile apps.

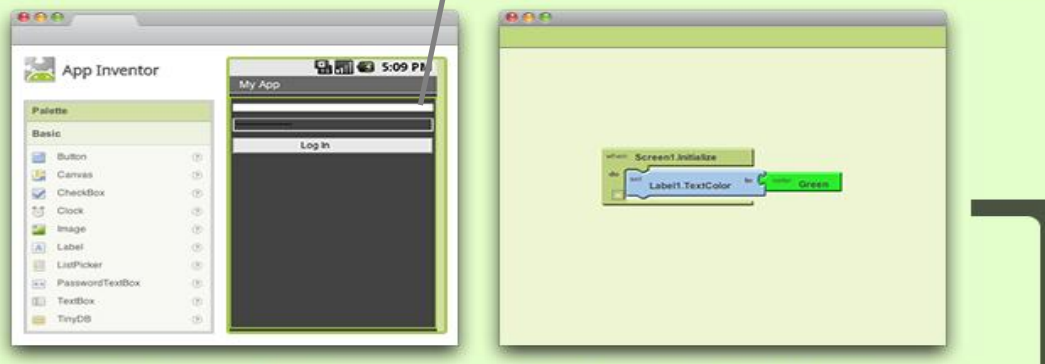
- Android apps.

What is AppInventor?

The App Inventor servers store your work and help you keep track of your projects.

Google App Inventor Servers

•App Inventor lets you develop applications for Android phones using a web browser and either a connected phone or emulator.



App Inventor Designer

App Inventor Blocks Editor

Android Emulator

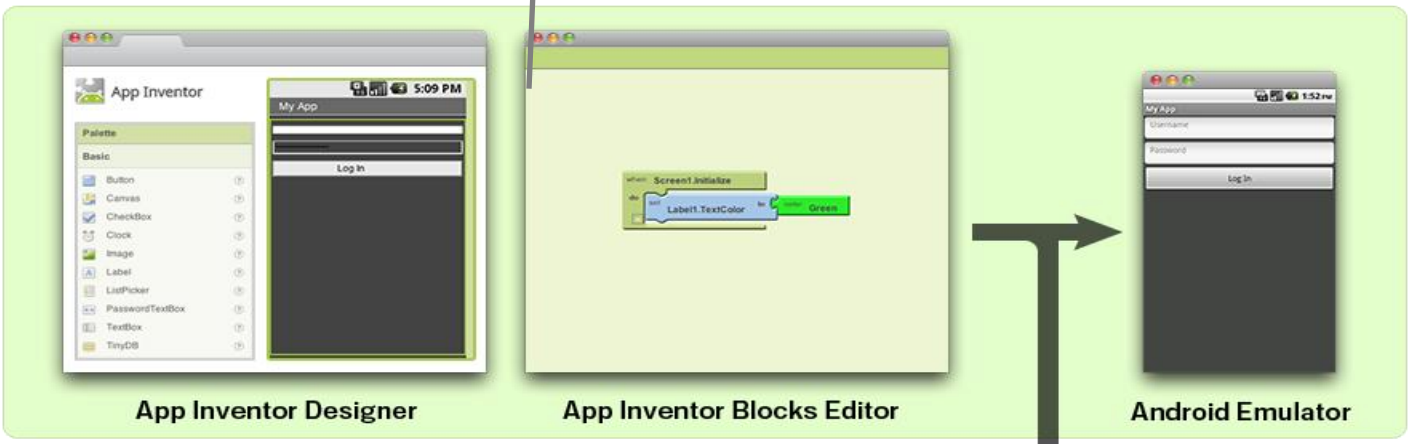
Android Phone

What is it?

Google App Inventor Servers

You build apps by working with:

- The *App Inventor Designer*, where you select the components for your app.
- The *App Inventor Blocks Editor*, where you assemble program blocks that specify how the components should behave.

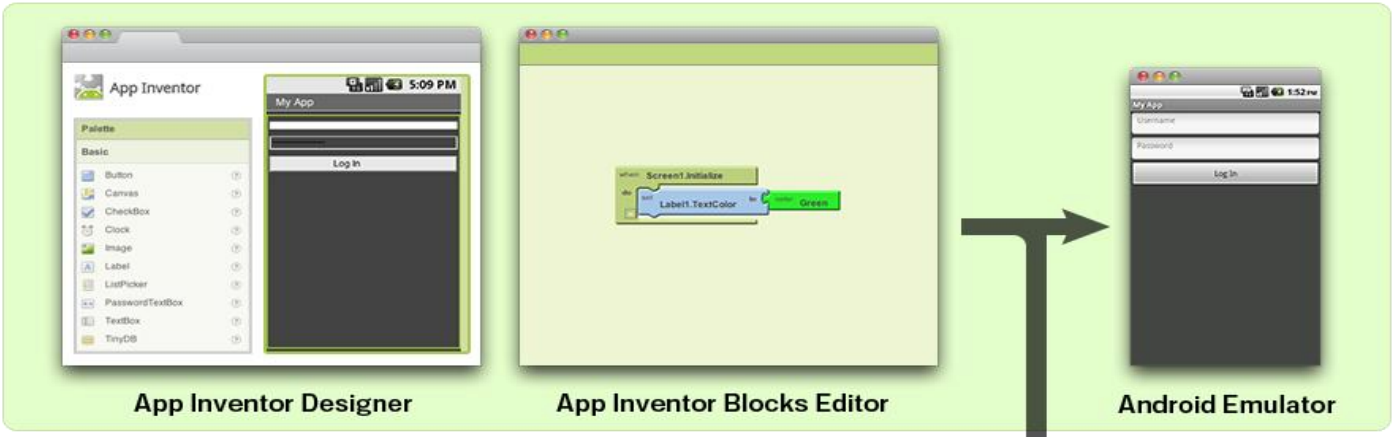


Android Phone

What is it?

Google App Inventor Servers

- Your app appears on the phone step-by-step as you add pieces to it, so you can test your work as you build.
- When you're done, you can package your app and produce a stand-alone application to install.
- If you don't have an Android phone, you can build your apps using the *Android emulator*, software that runs on your computer and behaves just like the phone.

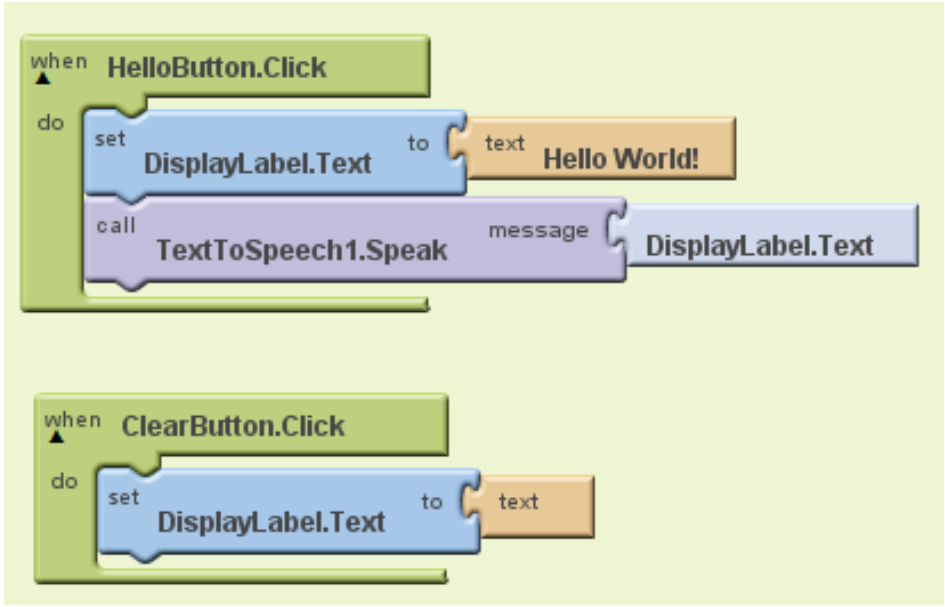


Java vs AppInventor

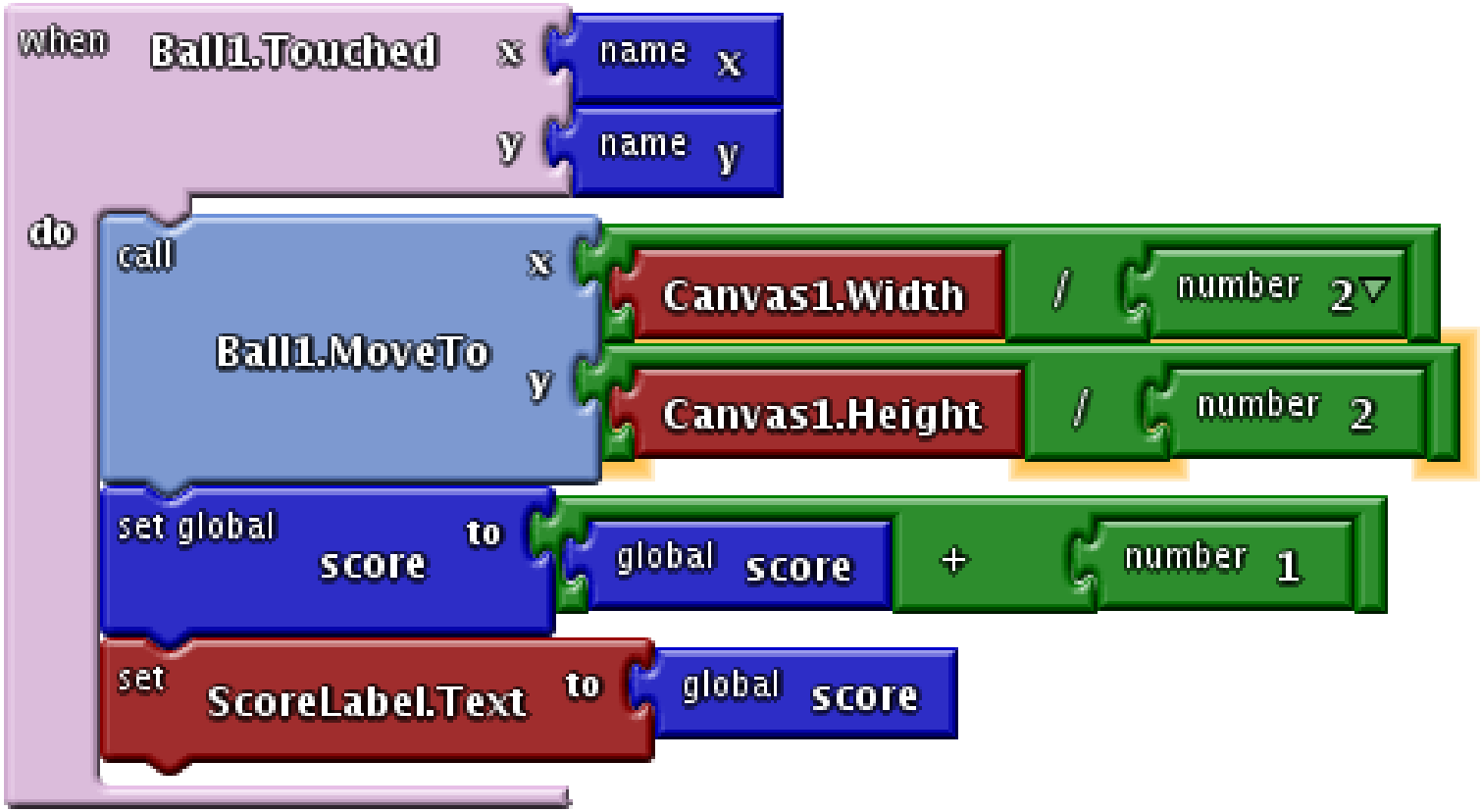
Java Code

```
public class HelloWorldApp {
    public static void main(String[] args) {
    System.out.println("Hello World!");
    }
}
```

AppInventor



Can you guess what these blocks do?



Why App Inventor Works

- **No typing** of code, no syntax errors.
- **Events** at first level
- Like putting together a **puzzle** (only some pieces fit)
- **High-level**-- the Google team has put a lot of work in it
- **Concrete**, less abstract

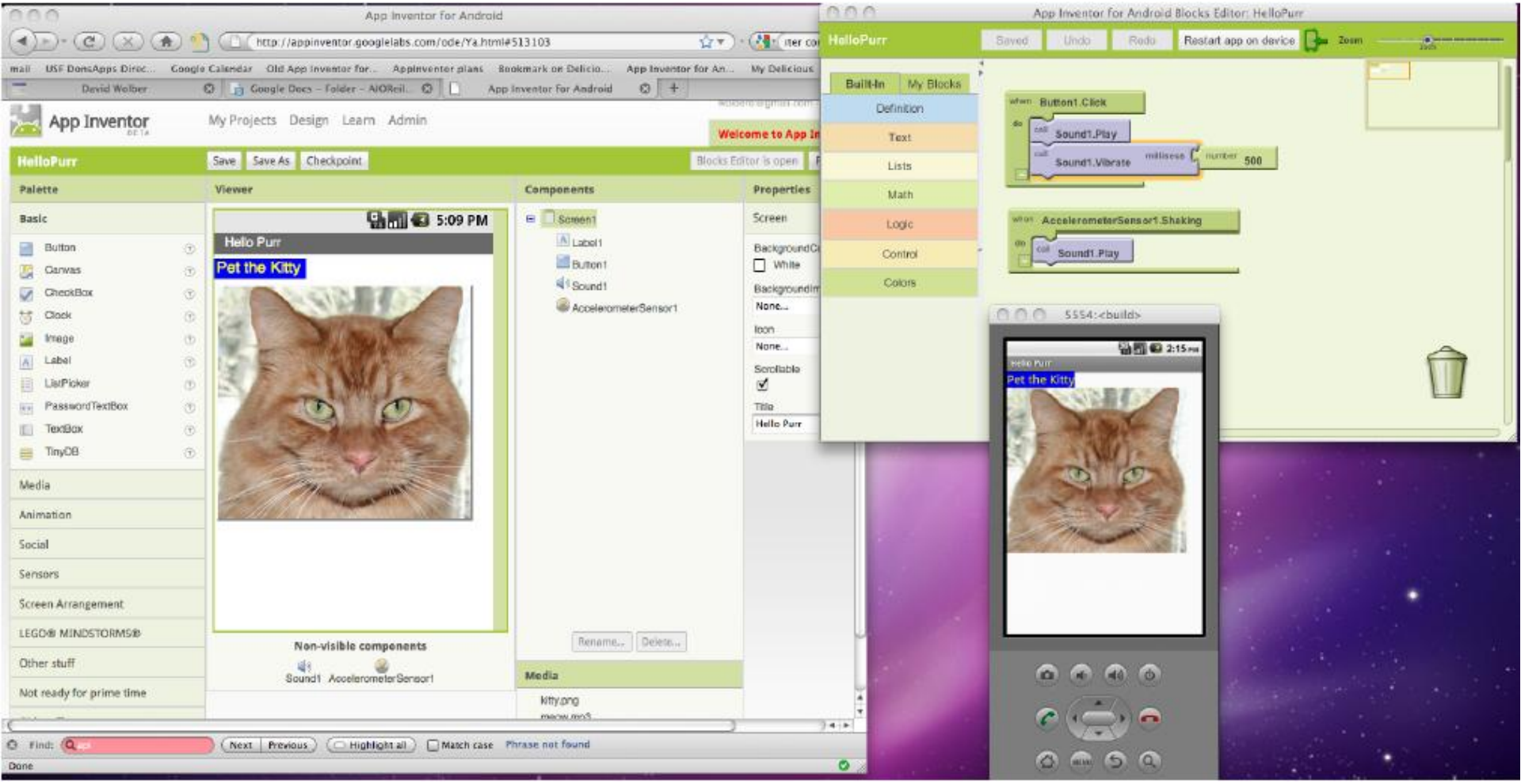
No silver bullet

- Can't build everything
  - user interface
  - not all phone features available

- Programming is still hard work!

Programming is an intellectually rigorous discipline that requires a lot of practice.

The component Designer, Blocks Editor and Emulator



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Installing AppInventor

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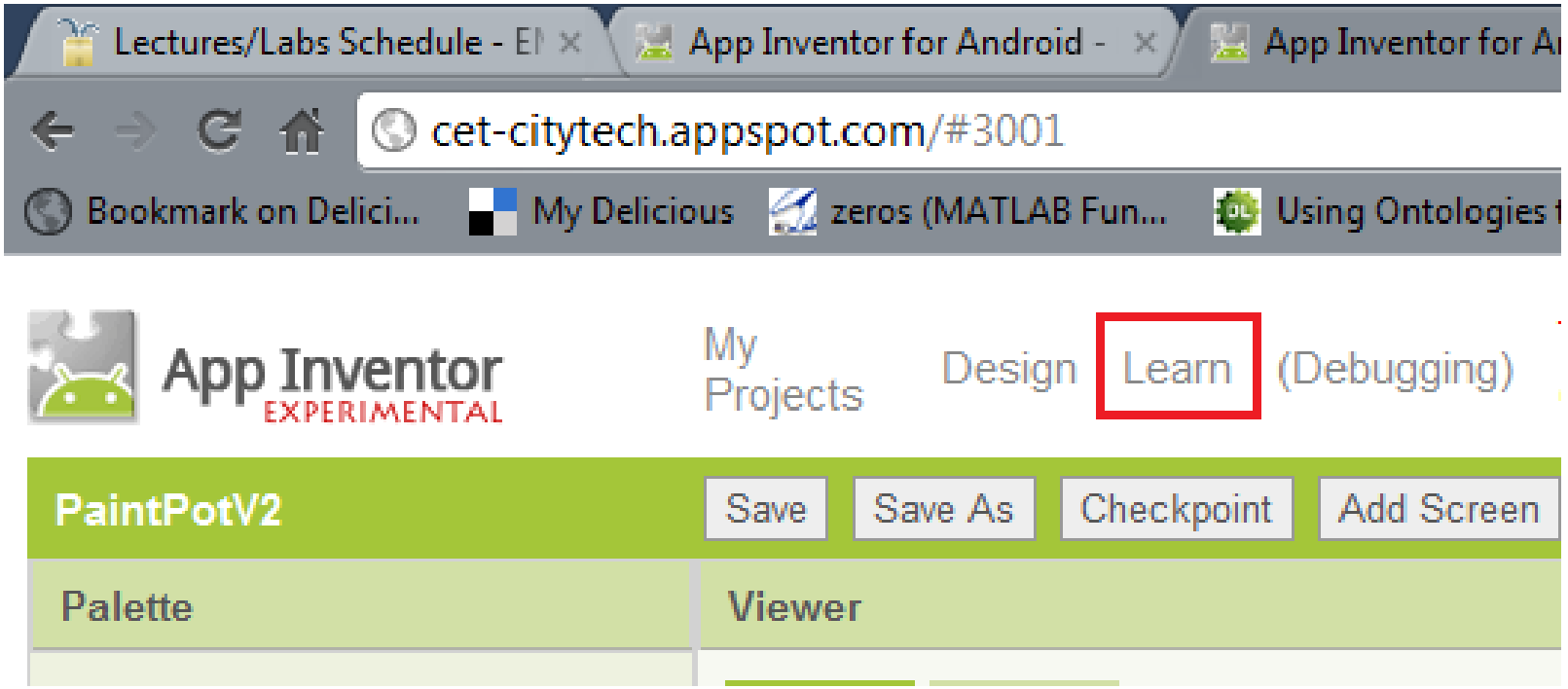
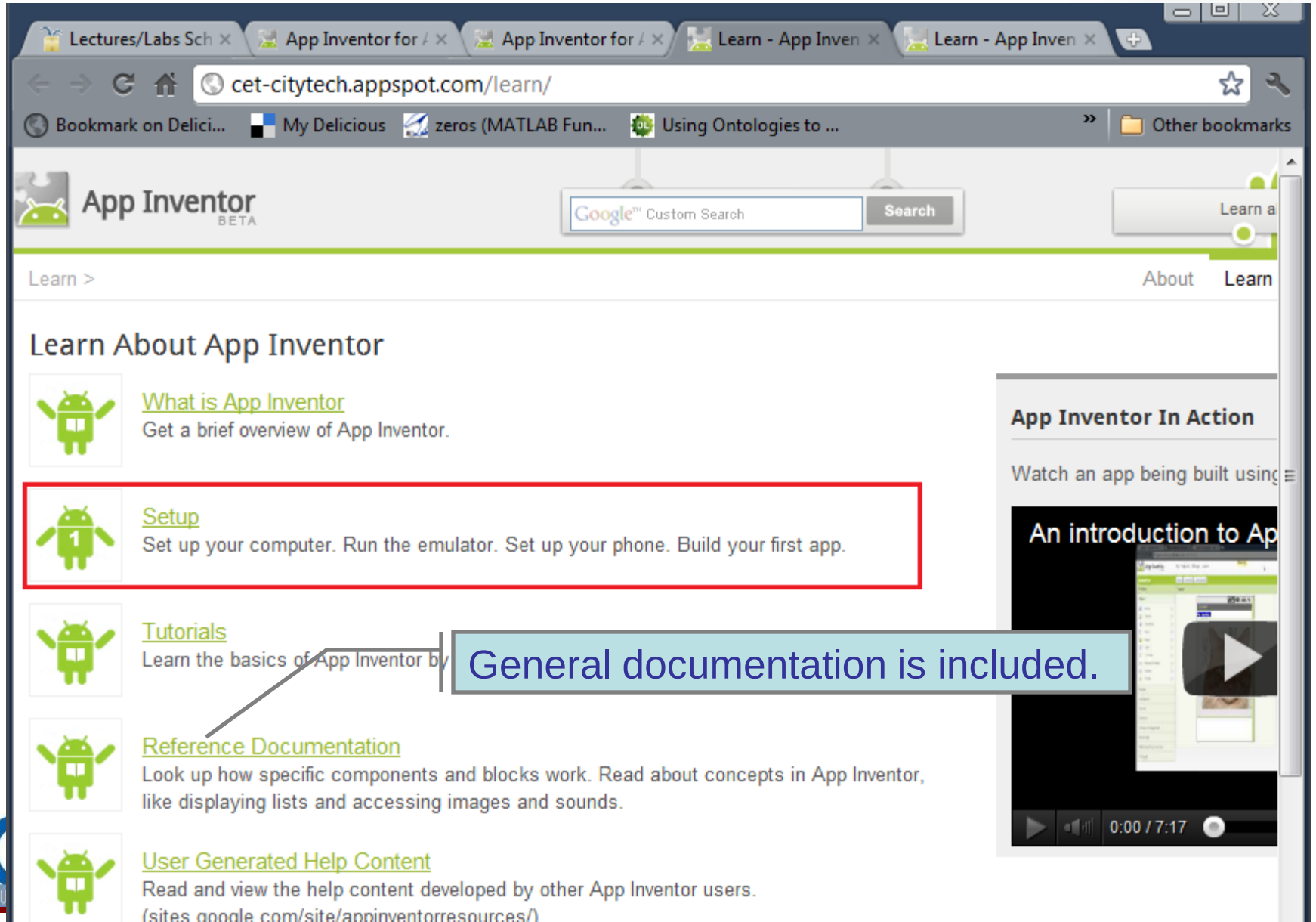
Before you try to create an app

http://appinventor.mit.edu/explore/content/setup-mit-app-inventor.html



Before you try to create an app



Your first AppInventor App

Your first app: “Hello Purr”

To have credit for each app you develop

- You should create a page for each application, containing the following:
  1. A description about what the app does
  2. Screenshots of the app running
  3. Screenshots of the Blocks diagram
  4. Show your app running to the Professor

  Take a look a these examples:
  - https://sites.google.com/site/dmushailov/
  - https://sites.google.com/site/jianhliportafolio/kittypurr

From the AppInventor FAQ's

- **Can I share project code with other App Inventor users?**
  - Yes. To share a project, go to the My Projects page, select a project, then choose **More Actions** | **Download Source**. This will create a zip file that you can share with others. To upload a project, go to My Projects, choose **More Actions** | **Upload Source**, and choose a zip file previously downloaded from App Inventor.
- **Can I share my apps with other Android users?**
  - Yes. To share an app, you first need to obtain an Android Package (.apk) file, which you can do by going to the My Projects page, clicking on the name of the app you want to share (which will take you to the Design page), and selecting **Package for Phone** | **Download to this Computer**. You can then email the app to your friends, who can install it by opening the email from their phone, or you can upload it to a website that both you and your friend can access. Note that they will need to change the settings of their phone to allow installation of non-Market applications.

http://experimental.appinventor.mit.edu/learn/userfaq.html

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Components

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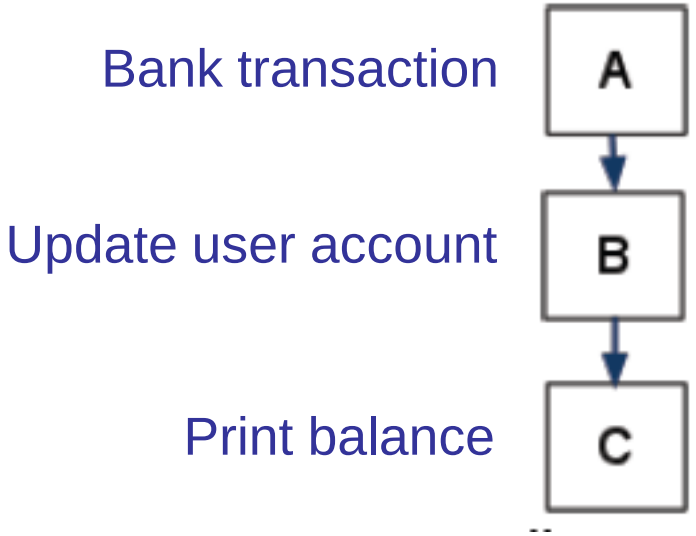
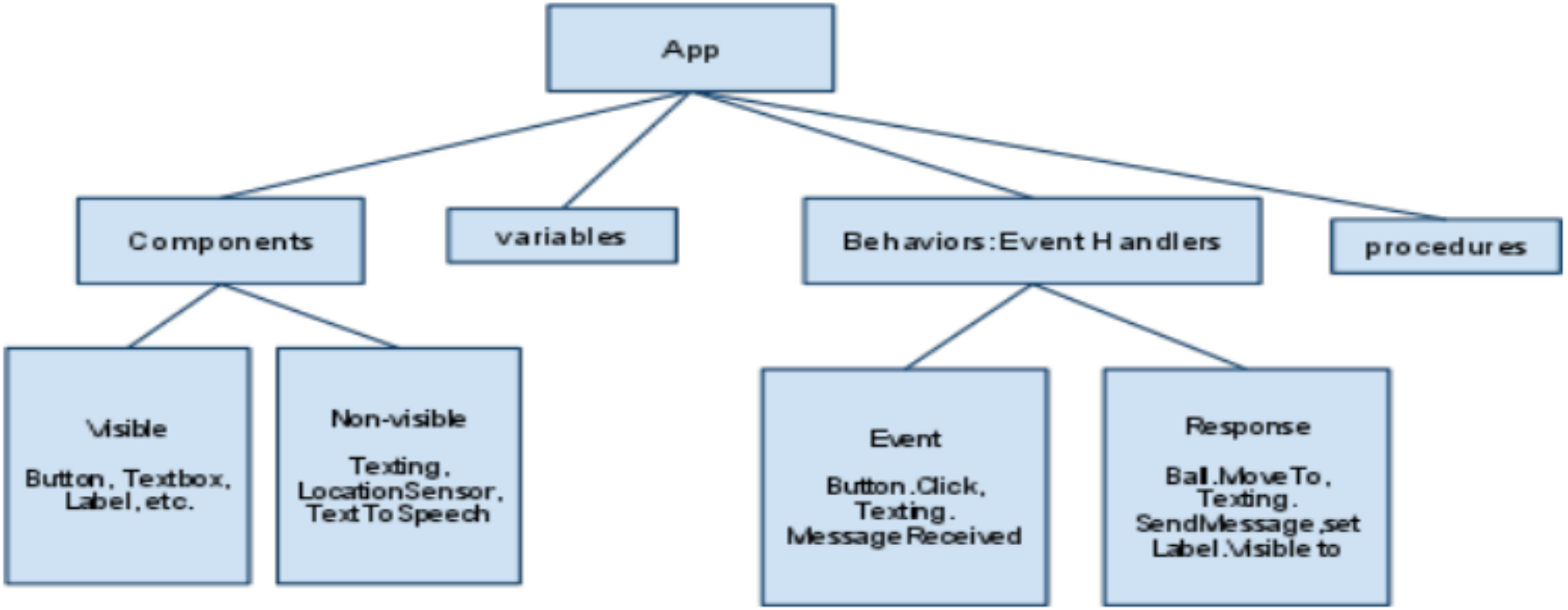
What is an App?

- From the user perspective?

- From the programmer perspective?
  - It is like recipe

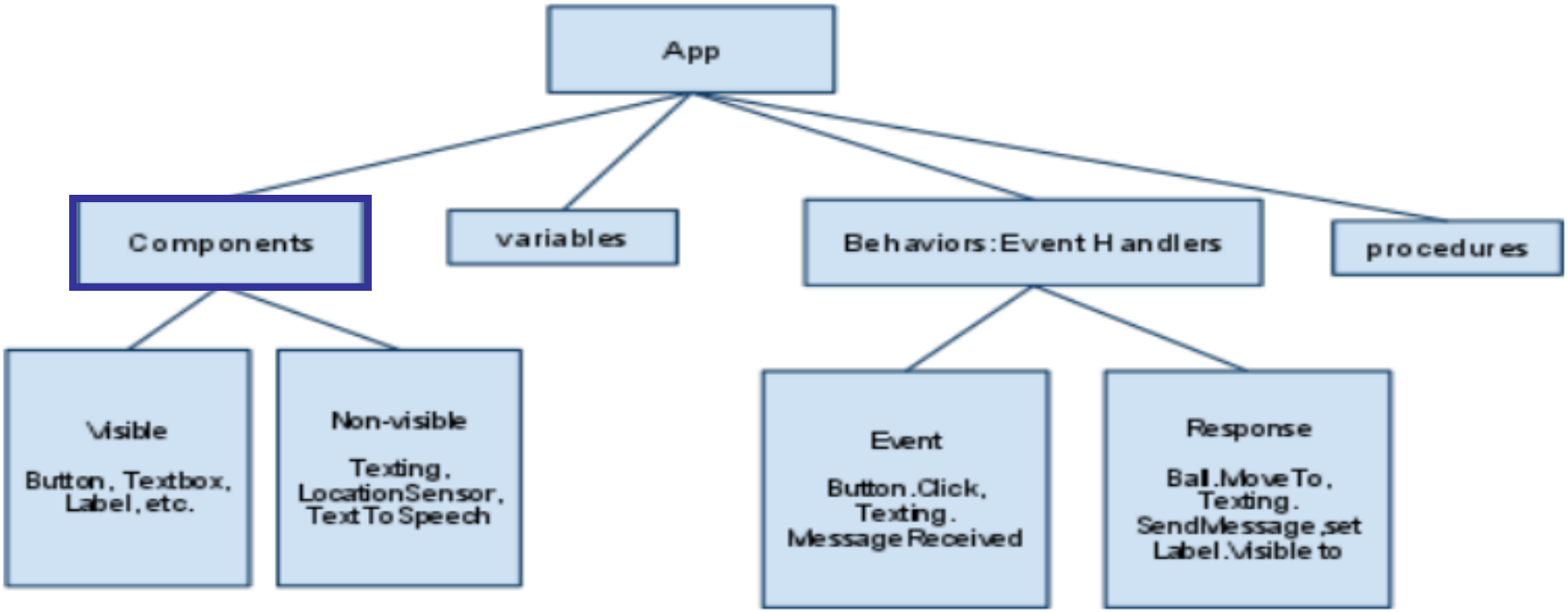


App architecture



Components

- Components are objects or elements used to create an application.



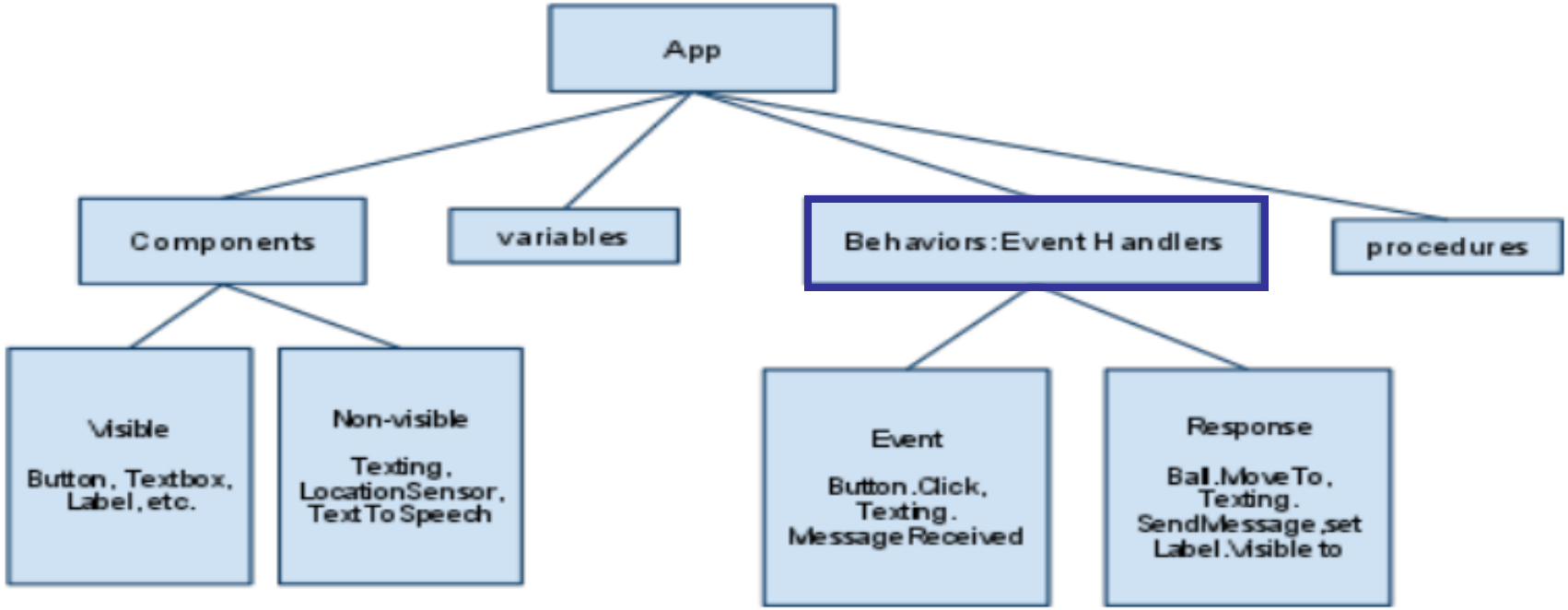
Events

- In computer programming, event-driven programming or event-based programming is a programming paradigm in which the flow of the program is determined by events—i.e., sensor outputs or user actions (mouse clicks, key presses) or messages from other programs or threads.

Event Type	Example
User-initiated event	when the user clicks button1 do...
Initialization event	when the app launches do...
Timer events	when 20 milliseconds passes do...
External events	when the phone receives a text do...

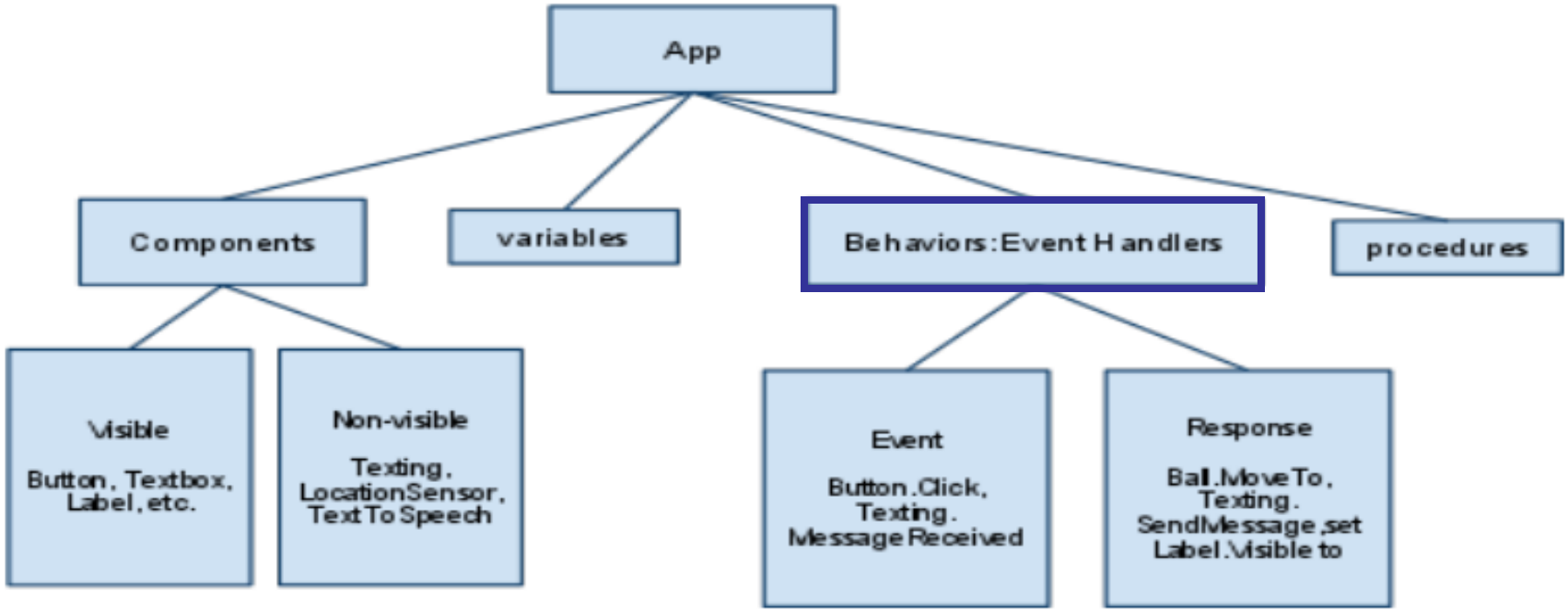
Event handler

- The functions performed in response to an event. When an event happens, the corresponding event handler is invoked.



Behaviors

- A behavior defines how the app should respond to the events, both user initiated (e.g., button click) and external (e.g., an SMS text arrives to the phone).



OpenLab and Blackboard

- Check **OpenLab** for any new **lab**.
- Check **Blackboard** for any new **quiz**.