



Wanna See Something Cool?



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The Real First Slide

Mobile App Development as a Way to Excite and Engage Students in Computer Science Classes

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About Me

- CS Teacher at TJHSST
- NCSSS Board of Directors
- CSTA Board of Directors, 9-12 Representative from 2011-13
- APCS Exam Reader and Table Leader since 2007
- College Board Workshop Consultant



Why Aren't More Kids Taking CS?

- Traditional CS classes can be boring, dull, or uninspiring
- Low enrollment in CS classes
- Retention rates are even lower
- Students will say, “CS is not what I thought it would be”
- The makeup of students in CS classes often doesn't reflect the demographics of the school
- Students don't identify themselves as people that belong in CS

A Possible Solution

- Mobile App Development!
 - Kids love their phones!
 - Get students solving real world problems by making technology in their first week of the course
 - Students will be able to show off their work to family and friends
 - Students will have the opportunity to be creative and to solve problems that are relevant to them

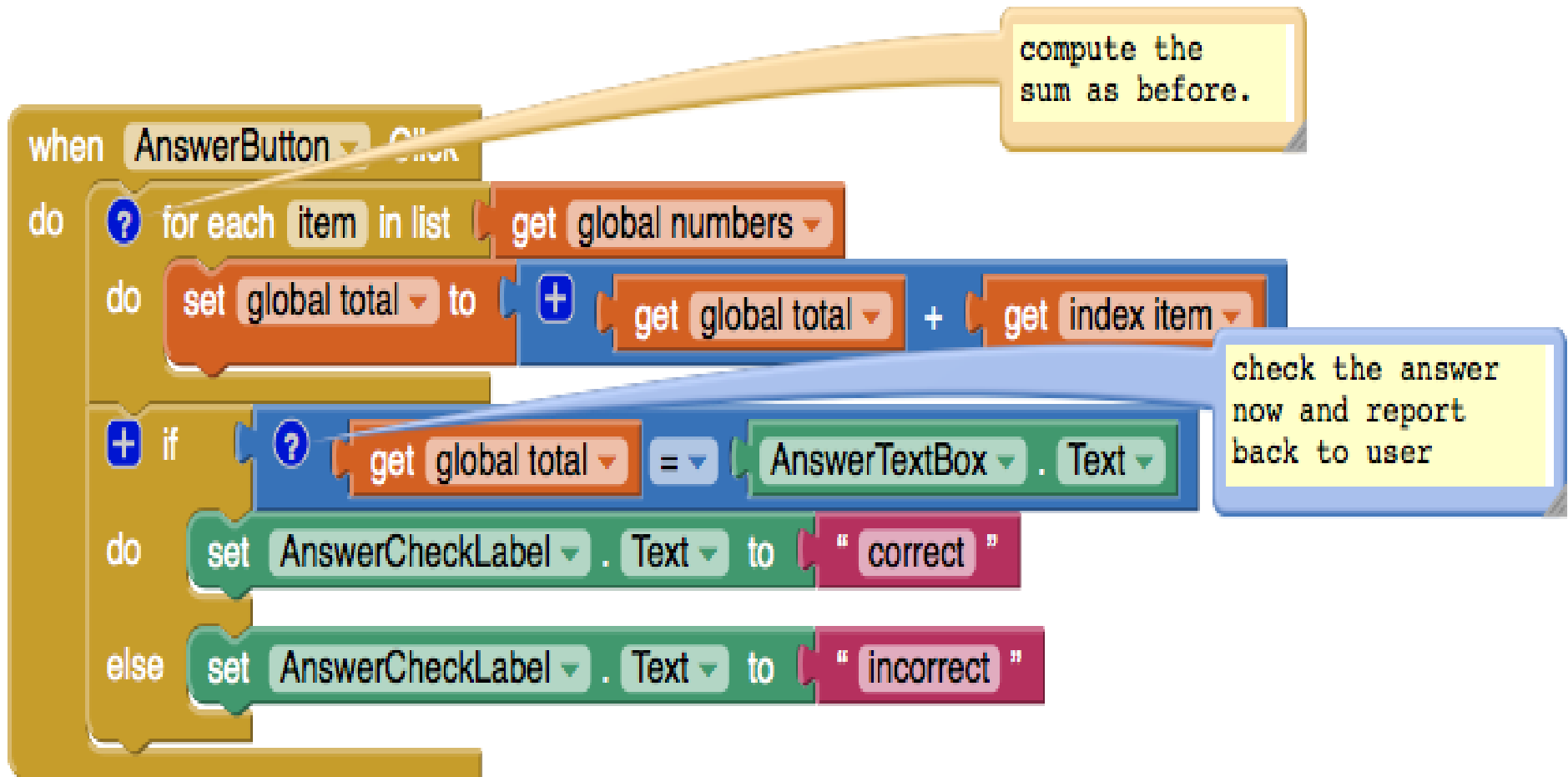
Is This Feasible?

- Yes!
- Build your first Android apps in minutes
- Put apps on phones and tablets
- Put apps in the Play store
- Software is free
- Phones not needed, but encouraged!

Hello, App Inventor!

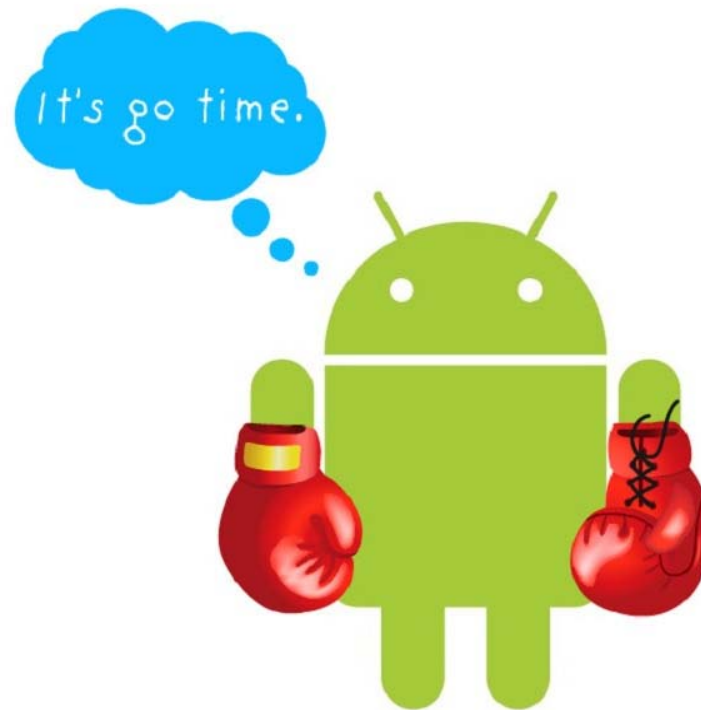
- FREE, drag-and-drop, cloud-based, open source platform for developing apps for mobile platforms that run the Android OS, appinventor.mit.edu
- Developed by Google and MIT, released to public in December 2010
- Two parts
 - Component Designer / Layout Manager – design the user interface
 - Blocks Editor – add behavior by snapping blocks together like a puzzle

A Glimpse of App Inventor



Drag-and-Drop != Programming

- ➔ “Blocks programming is real programming.” – said no student ever.



Drag-and-Drop == Programming

- Event driven programming
- Variables
- Conditionals, Iteration, Recursion
- Random numbers
- Procedures and parameters
 - Creating your own blocks
- Lists
- User interfaces
 - Model, view, controller

We Win!

- “Real programmers make programs that matter to real people.” – from Real Programmers Use Blocks – a New Definition of Who is a Programmer

So, What's It Good For?

- To dispel myths about the computing profession
- To show kids that:
 - they can be creators (not just consumers) of technology
 - they have the power to help change the world
 - computing is creative, collaborative, relevant, and personal



So, What's It Good For?

- To integrate computing with other subjects (CS + X)
- To get them excited to learn more!
 - Taking a 2nd computer science class
 - Move on to Processing w/ Android or straight to Android Studio or Eclipse
 - Enter a contest or competition

Where Can It Fit In The Curriculum?

- Curricular
 - middle school
 - proposed AP CS Principles course
 - CS0
 - at the start of an APCS A course
 - grad course in UI design, accessibility
- Co-curricular
 - integrated units – Contagion, feral hogs
 - alternative to multimedia presentations
 - service learning projects
- Extracurricular
 - after school programs, clubs, summer camps
 - learning about entrepreneurship

Who Is This Right For?

- Beginners (even as young as late elementary school)
 - Get them excited about creating something using programming
- Advanced students
 - Expose them to user interface design, design thinking, advanced sensors, and a different programming paradigm
- Students in after school programs, clubs, and summer camps
 - Get them hooked on computing so that they will then enroll in your courses

How Will This Help with BPC Efforts?

- “People solve problems that they see.” – Ben Jealous, former president of the NAACP
- Students need to identify with the group of people working in that industry in order to see themselves part of it
 - Bring in mentors to help with their projects

Contests and Hackathons

- [Verizon Innovative App Challenge](#)
- [Technovation Challenge](#) (Girls only)
- [MIT App Inventor Contest](#)
- [Congressional App Challenge](#)
- [College Student Competition](#)
- [Apps4VA](#)
- [HAC4EDU](#)
- [Stanford's Imagine Mobile Contest](#)
- [Booksmash Challenge](#)
- [Siemens' We Can Change the World Challenge](#)



Show Me The Money!

- Apps made with App Inventor can be put in the Google Play Store
- \$25 one-time fee to register as a developer
 - <https://play.google.com/apps/publish/v2/signup/?pli=1>
- Prepare app for Play Store
 - <http://beta.appinventor.mit.edu/learn/reference/other/appstoreplay.html>



Freecycle..Regift..Just Get Us Phones

- Call for donations in school newsletter
- Visit local cell phone repair stores
- Leverage social networking
- Utilize DonorsChoose.org
- Pool together to create a lending library



App Inventor Resources

- [Book](#)
- Tutorials
 - [App Inventor Tutorials](#)
 - [Snippets](#)
 - [David Wolber's Tutorials](#)
- [Forum](#) – check out the category *App Inventor in Education*
- [Project Gallery](#)

More Resources

➤ Sample Course Websites

➤ Ralph Morelli's Mobile CS Principles website -

<http://mobile-csp.org/resources>

➤ Trinity College -

<http://www.cs.trincoll.edu/~ram/cpsc110/syllabus.html>

➤ University of San Francisco -

<https://sites.google.com/site/appinventorcourse/>

➤ Georgia Tech -

<https://sites.google.com/site/cs1803poc/home>