An exploration of the instruction of Middle School Computer Science

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Introduction

- Computer Science is quintessential in the 21st century
- Computer Science education is lacking at the very least and at worst, disseminates an incorrect perception of the field
- Computer Science is tied with Computer Usage and Computer Programming, both which are helpful, but not necessary to practice Computer Science.

Goal

- What is the driving question of your Capstone?
- Is it possible to consolidate industry best practices into a CS course that focuses less on code and more on the theory side of CS?
- Created a book that uses no code for reference and covers the core areas of Computer Science by translating them into basic mathematical and lingual concepts.

Background

- Divergence in best Practices
  - The “Bootstrapping” Debate
  - Which Language to use
  - Teacher Crisis Debate
- Utility of current CS education

Internship/Volunteership

- Worked with a teacher at “Grupo Educativo "16 de Septiembre"” on the US Canada Border to develop a CS curriculum
- Unable to teach the course/have the course taught due to Coronavirus disruptions in the region

Methods

- Originally created a course to be taught with the hopes of having it taught
- Pivoted to writing a book to convey the same material.
- Tried to consolidate Industry best practices with educational best practices
- Developed curriculum designed for a middle school audience.

Challenges

- Was unable to teach/have course taught due to Covid-19 restrictions
- Difficult to find schools that were willing to pilot a new CS course in the midst of pandemic related transitions
- Schools are under resourced currently making involvement difficult.

Results & Analysis

A-Guide-to-Intuitive-Programming:

Reflections

- Surprised to find CS education is so fragmented
- Found very few high quality teaching resources for CS
- Low emphasis on CS and much more emphasis on code
- Difficult to find Teachers for CS
- Learnt how to simplify content and digest it for an atypical audience
- Developed a poof based teaching style for CS.

Questions?

Submit them via email to parthi@kls.org