An "enjoyable" introduction to Programming

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Analogy for learning to program: Learning to ride bicycle

- Difficulties for beginners:
  - Learning to balance & go forward together

- Difficulties for experienced folks:
  - None.

Solution for beginners

- Training wheels
- Helmet

- Makes learning enjoyable and safe!

- Similar difficulties are there while learning to program in a computer.

Learning to program: Difficulties for beginners

1. Syntax errors

- struggle for hours to fix syntax errors
- Loose confidence
- Frustrating experience
- Run away & never come back if possible!

2. Logic errors
 Not a serious issue.

Difficulties for experienced programmers

Logic errors

Continuous learning

Recommendation

- C/C++/Java in introductory programming course has been a disaster for lots of learners!

- It is better to use intermediate steps like Alice and KhanAcademy.

- Following is a meaningful approach:

Alice → KhanAcademy JavaScript → C/C++/Java

Recommendation …

- Visual Programming Tools like Alice use drag-and-drop programming and enable us to master programming concepts.

- Programs are always ready to run since there are no syntax errors. In other words, they enable us to focus on the logic first & build confidence.

Free Visual Programming Tools

Tool	Provider	Web-site
Alice 2.3	Carnegie Mellon University	www.alice.org
Scratch	MIT	scratch.mit.edu
Snap!	UCBerkeley	byob.berkeley.edu
Lego MindStorm	Lego	mindstorms.lego.com
Several more…		

A few bit advanced tools

Tool	Provider	Web-site
Alice 3.1	Carnegie Mellon University	www.alice.org
JavaScript & Processing.js	Khan Academy CS platform	www.khanacademy.org/cs
Racket	UCBerkeley	wescheme.org
Greenfoot	Ukent	www.greenfoot.org
Several more…		