

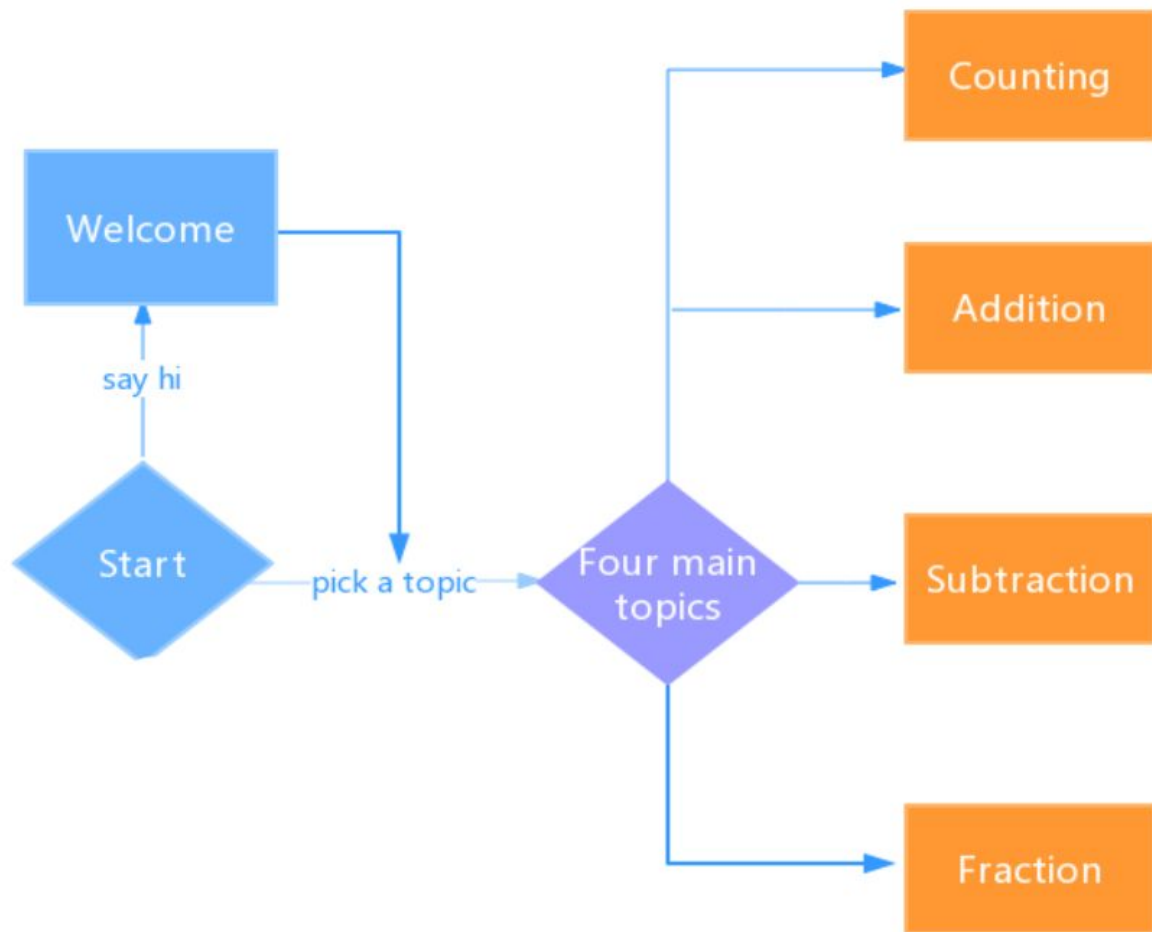
Aristotle: a Binary Tutor-Bot

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The Pitch

- A bot that tutors you on binary
 - Counting (implemented)
 - Operations
 - Addition (implemented) and subtraction
 - Fractions
- Gives explanations and opportunities for student to ask clarifying questions
 - *So $101 + 10 = 111$, is that right?*



Two Topics Implemented: Counting and Addition

Counting:

Do you know decimal?

Yes: move to binary counting

No: explain decimal, examples

Understand decimal: move to binary

Here is how binary works, do you understand?

Understand binary (Done!)

Don't understand binary (more examples)

Addition:

Do you know carrying?

Yes: move to binary addition

No: explain carrying, examples

Understand carrying: move to binary

Here is how binary addition works, do you understand?

Understand addition (Done!)

Don't understand (more examples)

Student asks Confirmation Questions

“What is $1 + 11$?” - “ $3 + 1 = 4$ in decimal, right? That's like writing $11 + 1 = 100$ in binary. Again, we'll work from the right to the left. Our two digits are 1 and 1[...] [...]And our final result is 100 or 4.”

Can handle partial input, two numbers means you calculate for them, three means you check their answer to see if it matches

Still kinda lecture-y, and we're not sure how to fix that

Demo

<https://cosi136a-2018.slack.com/messages/DEUKGUA49/details/>



What people did

- Mark
 - Randomized examples on the backend
 - Counting and Addition walkthroughs and checkers
 - Wrote original script
- Talia
 - Most Dialogflow intents
 - Handled dialog paths with input/output contexts
- Jiarui
 - Set up Heroku and Slack
 - Fractions and subtraction examples
 - Presentation setup

What people learned

- Mark
 - Gained familiarity with the git>heroku pipeline. So much more comfortable now
 - How to save information on Heroku between user calls (but we haven't really taken advantage of it)
- Talia
 - Became better able to use contexts to skip around a dialog tree
 - Learned how to make semi-mixed initiative in platforms that don't really support it
- Jiarui
 - Became more familiar with Dialogflow and webhook
 - Learned how to use context on Dialogflow

What we would do next

- Try to add customization
 - “These examples are too hard” -> making the numbers smaller with memory on back end
 - Remembering names etc
- More branches
 - There can never be enough
- Quizzing
 - Right now it doesn't have functionality to ask student questions
 - Though it should be pretty doable