

Currents: Coding with Cinder

Week 5: Video & Audio Playback / Building & Debugging a Program

Instructors

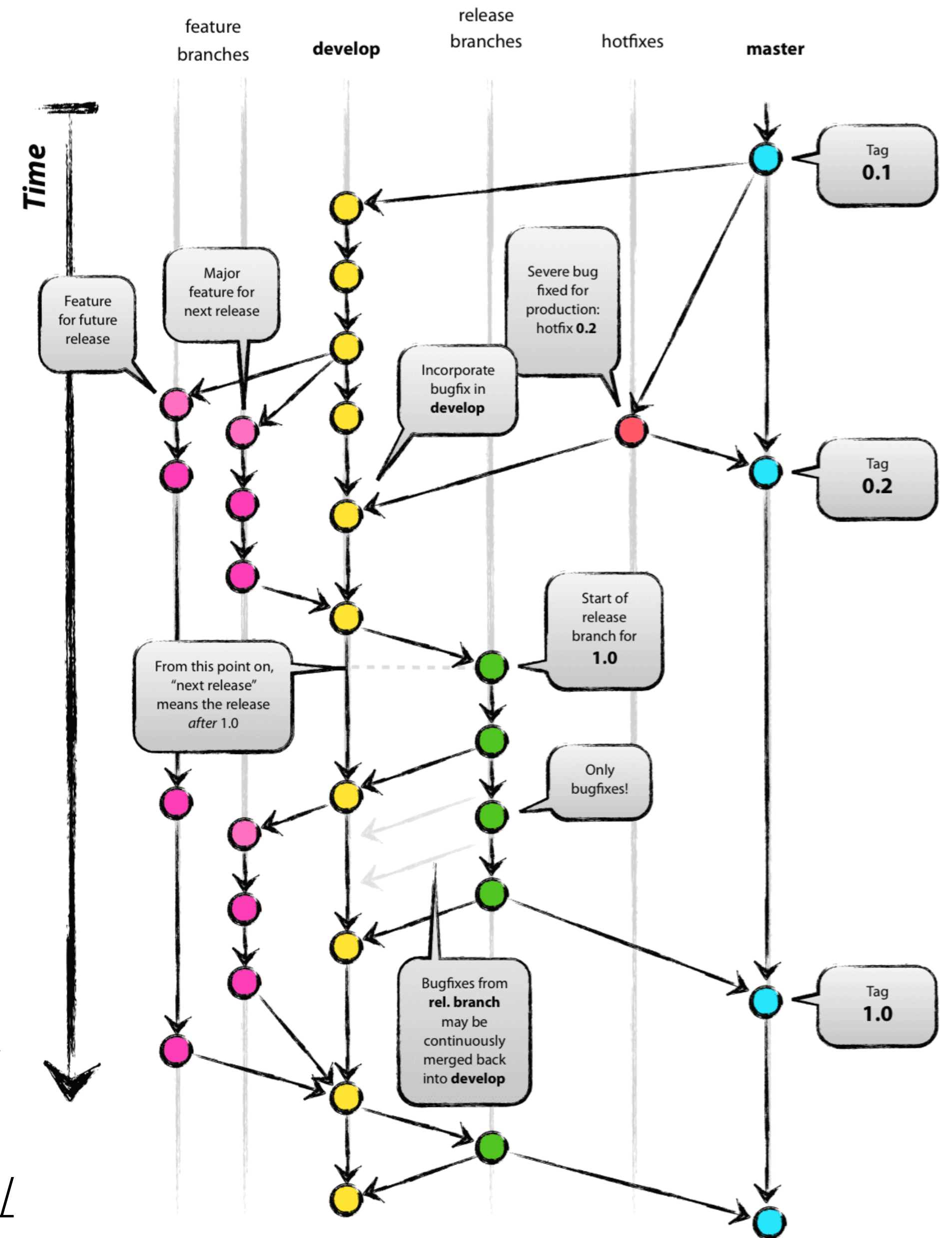
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Version Control with git-flow

Git-flow cheatsheet: <http://danielkummer.github.io/git-flow-cheatsheet/>

<http://nvie.com/posts/a-successful-git-branching-model/>



Task 2: Collaborate with your fellow programmer!

12. **Both:** Pull the newest code from GitHub:

```
git pull
```

13. **Member 1:** create a feature branch and work on it:

```
git flow feature start answer1
```

Modify the value of the answer variable to **43**; commit and publish:

```
git add -A
```

```
git commit -m "Modify answer to 43"
```

```
git flow feature publish answer1
```

14. **Member 2:** create a feature branch and work on it:

```
git flow feature start answer2
```

Modify the value of the answer variable to **45**; commit and publish:

```
git add -A
```

```
git commit -m "Modify answer to 45"
```

```
git flow feature publish answer2
```

Task 2: Collaborate with your fellow programmer!

15. **Member 1:** On repo website, create a pull request for the **feature/answer1** branch; merge it into **develop** branch; and delete the feature branch. In terminal, Finish (delete) the local feature branch:

```
git checkout develop  
git pull  
git flow feature finish answer1
```
16. **Member 2:** On repo website, create a pull request for merging **feature/answer2** into **develop**.
17. **Both:** Now we see a conflict. All conflicts must be resolved before merging. Both team members should sit together, click “Resolve conflicts” button, look at the conflicting parts in the code, decide which part to keep/delete, resolve all conflicts, commit changes, merge the pull request, and finally delete the feature branch.
18. **Member 2:** Finish (delete) the local feature branch:

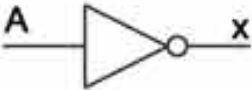






```
git checkout develop  
git pull  
git flow feature finish answer2
```
19. **Member 1:** Update the repo according to GitHub:

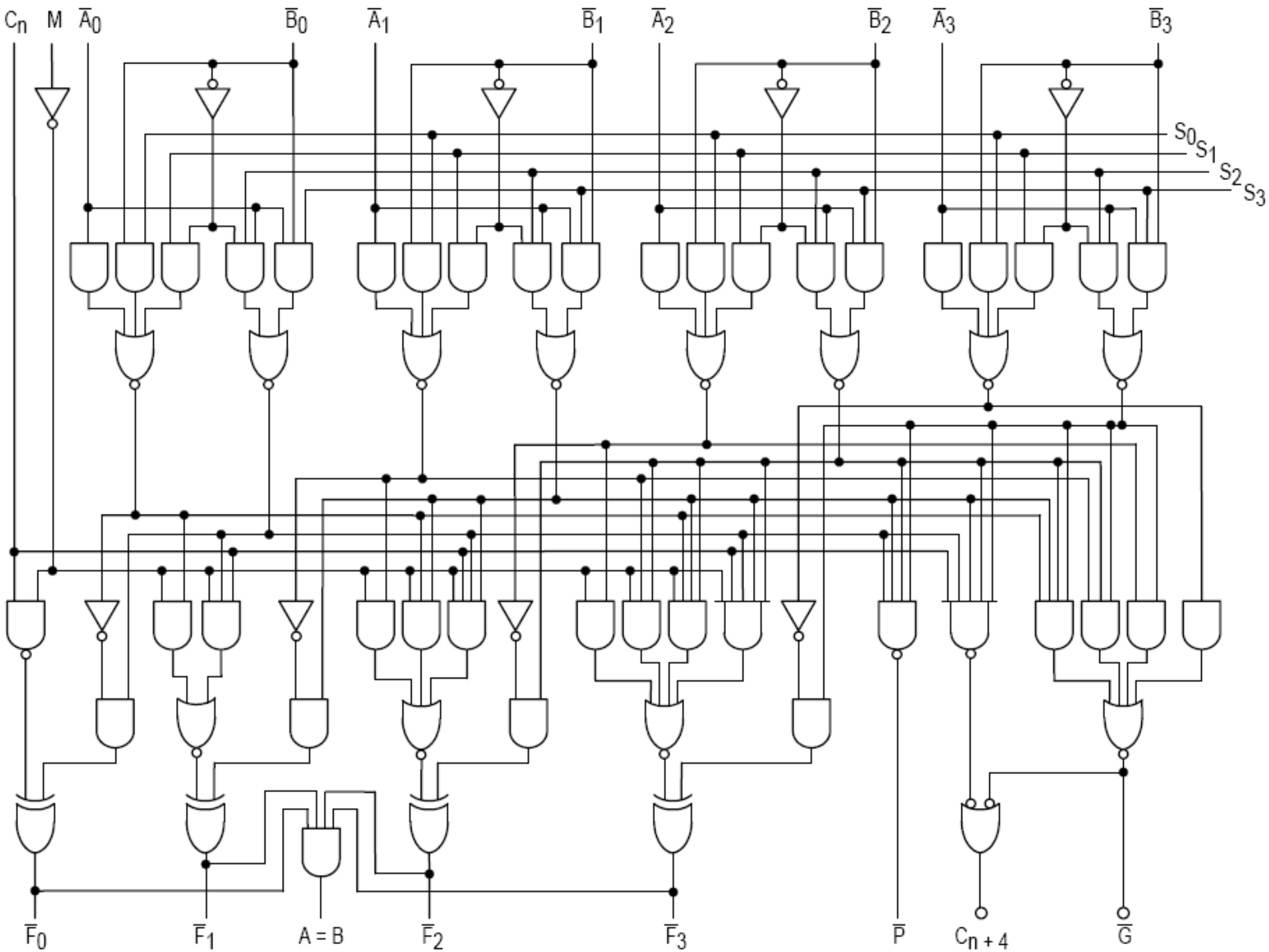
```
git checkout develop  
git pull
```

Task 3: Clone your homework repo into Cinder root folder

1. In terminal, go to your git repo, commit all changes, push to GitHub:
`cd <path to your repo>`
`git commit -am "Update files."`
`git push`
2. Delete your local repo:
`cd ..`
`rm -rf <path to your repo>`
3. Go to your repo website, copy the HTTPS link to your repo.
4. In terminal, go to your Cinder root folder, clone your repo there:
`cd <path to your Cinder root>`
`git clone <HTTPS link to your repo>`
5. From now on, when doing homework, use TinderBox to create Cinder projects within your repo directory. In the future, if you need to clone your repo to another computer, clone it into Cinder root folder, too. Your projects (since this week) should be able to build and run on the new computer as well. (We'll try to fix your earlier projects in the next week!)

Logic Gates

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What is a CPU made from?

Not only data, but also control signals are represented by 0s and 1s (machine language)!

<http://imgur.com/M59IOZQ> [http://www.wikiwand.com/en/Arithmetic logic unit](http://www.wikiwand.com/en/Arithmetic_logic_unit)

```
# Equivalent to: SUM = NUM1 + NUM2
```

```
MOV AL, NUM1
```

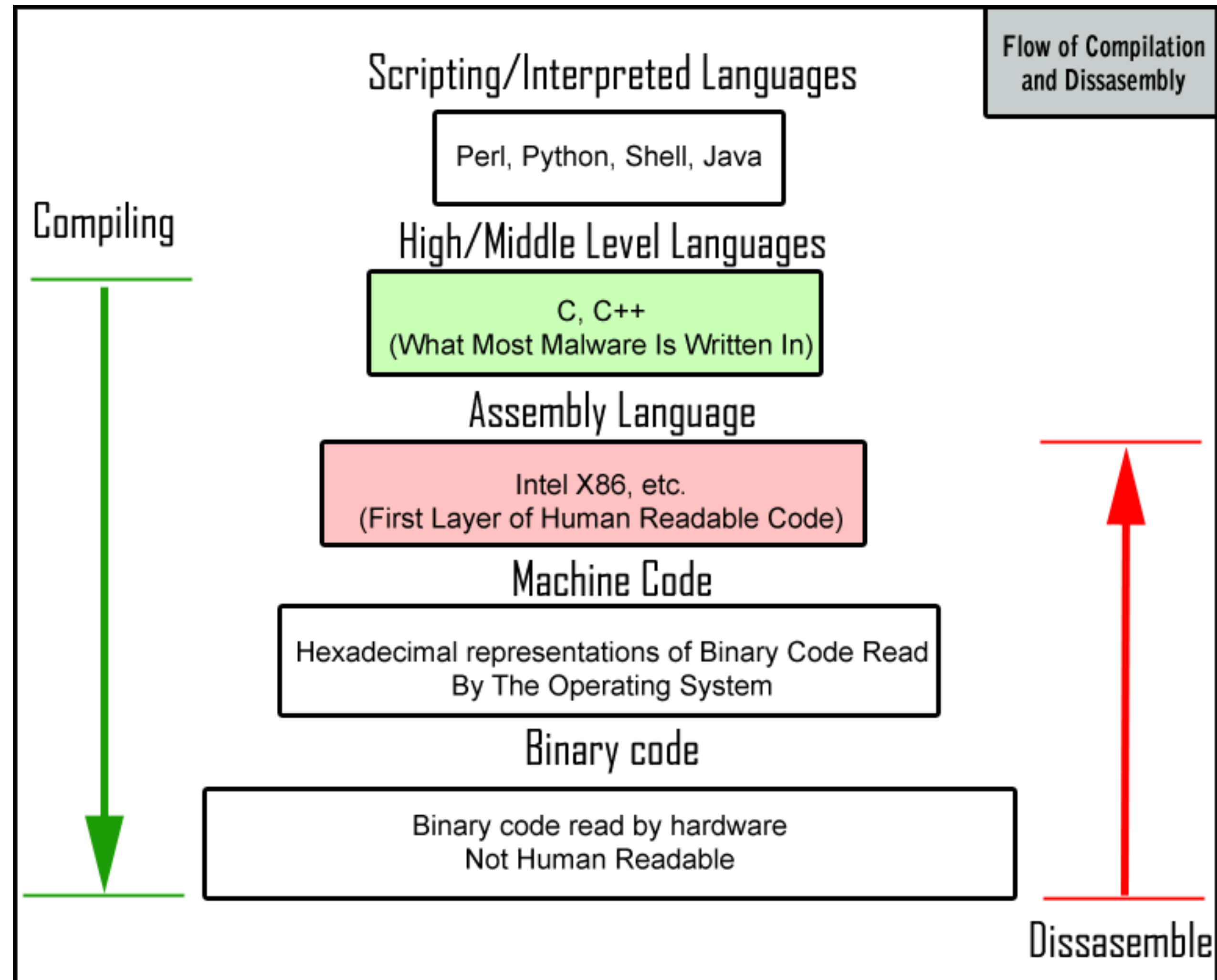
```
MOV BL, NUM2
```

```
ADD AL, BL
```

```
MOV SUM, AL
```

Assembly Language

Human-readable, but still machine-oriented.



Hierarchy of Computer Languages


```
# preprocess:
clang++ main.cpp -E

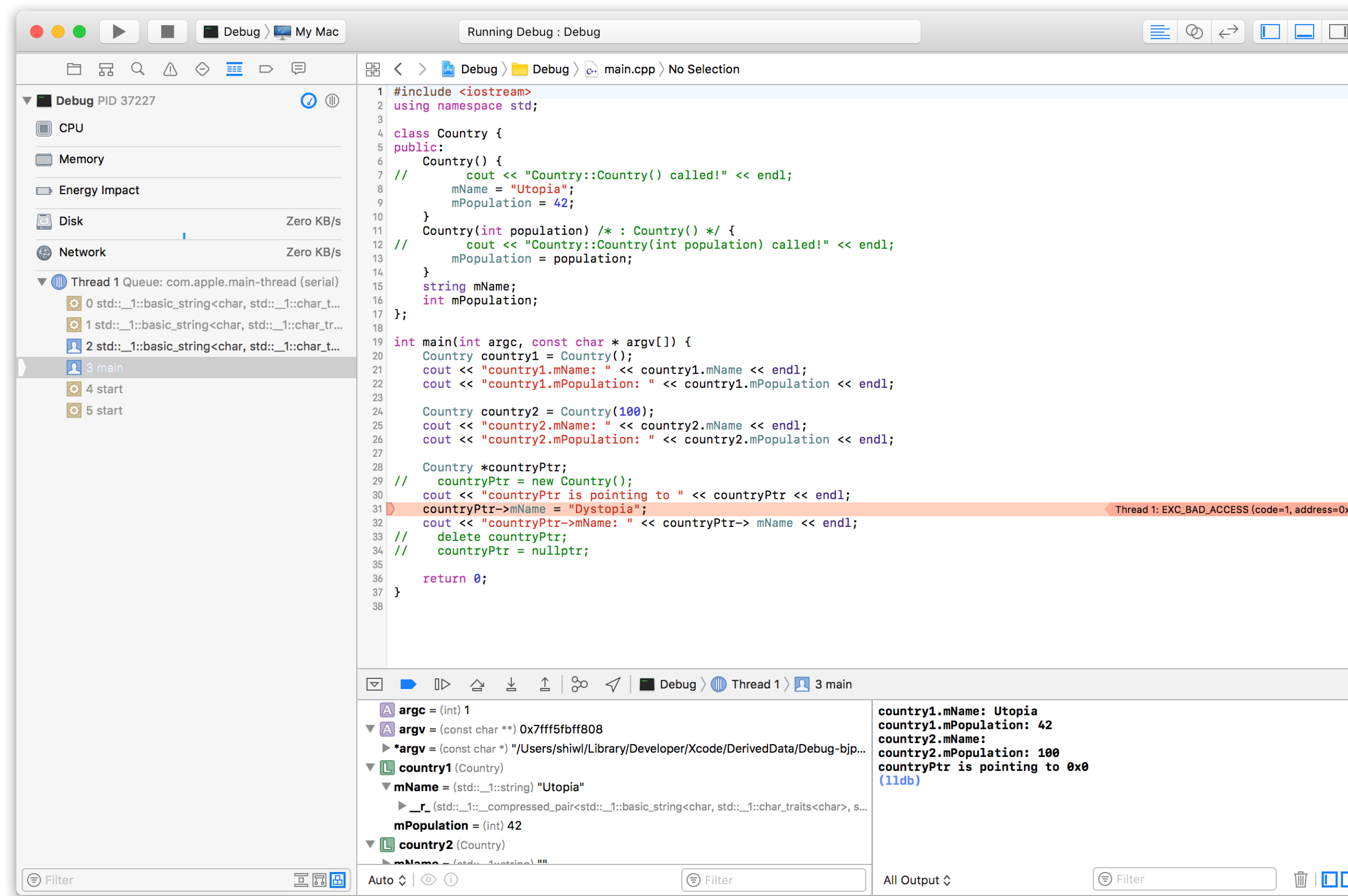
# assemble:
clang++ main.cpp -S

# compile:
clang++ main.cpp -c
clang++ function.cpp -c

# link:
clang++ main.o function.o -o main

# run:
./main
```

Building a Program



2 Common Ways to Debug a Program

- Output debug information to console;
- Using the debugger to step through the code.