Lab 2 More

Tips and Open OH

Admin

- Lab 2 Part 2
  - Part 2 Design due tonight @11:59pm!
  - Part 2 Code due 2/14 (grace period and late days apply as usual)

Pipe Hints

Pipe Impl Hints

- Remember, Pipe is a variant of the bounded buffer problem
  - producer = writer
  - consumer = reader

Pipe Impl Hints

There are a lot of cases you will need to cover with your pipe design…

So let's discuss them!

Pipe Impl Hints

- When should a writer wait?

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- When should a reader wait?

When there are no bytes to read **and** still writers left.

Pipe Impl Hints

Say all writers are closed…

- What if there are sleeping readers? What should happen?

Say a new reader comes in…

- What should happen if there are active writers?
- What should happen if the writers are closed?
    - What if there is still data in the buffer?
    - What if there is no data in the buffer?

Pipe Impl Hints

Are partial reads allowed? What about partial writes?

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Are partial reads allowed? What about partial writes?

- Partial reads - YES
- Partial writes - NO

Ok… so how will you ensure that writes remain atomic?

Pipe Impl Hints

In the slides for Lab 2 Part 2, we mentioned that part of the pipe metadata you need to track the waiting active writer….when and how do you use this information?

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- When a writer does not finish its write, we track it and block other writers!

Exec Hints

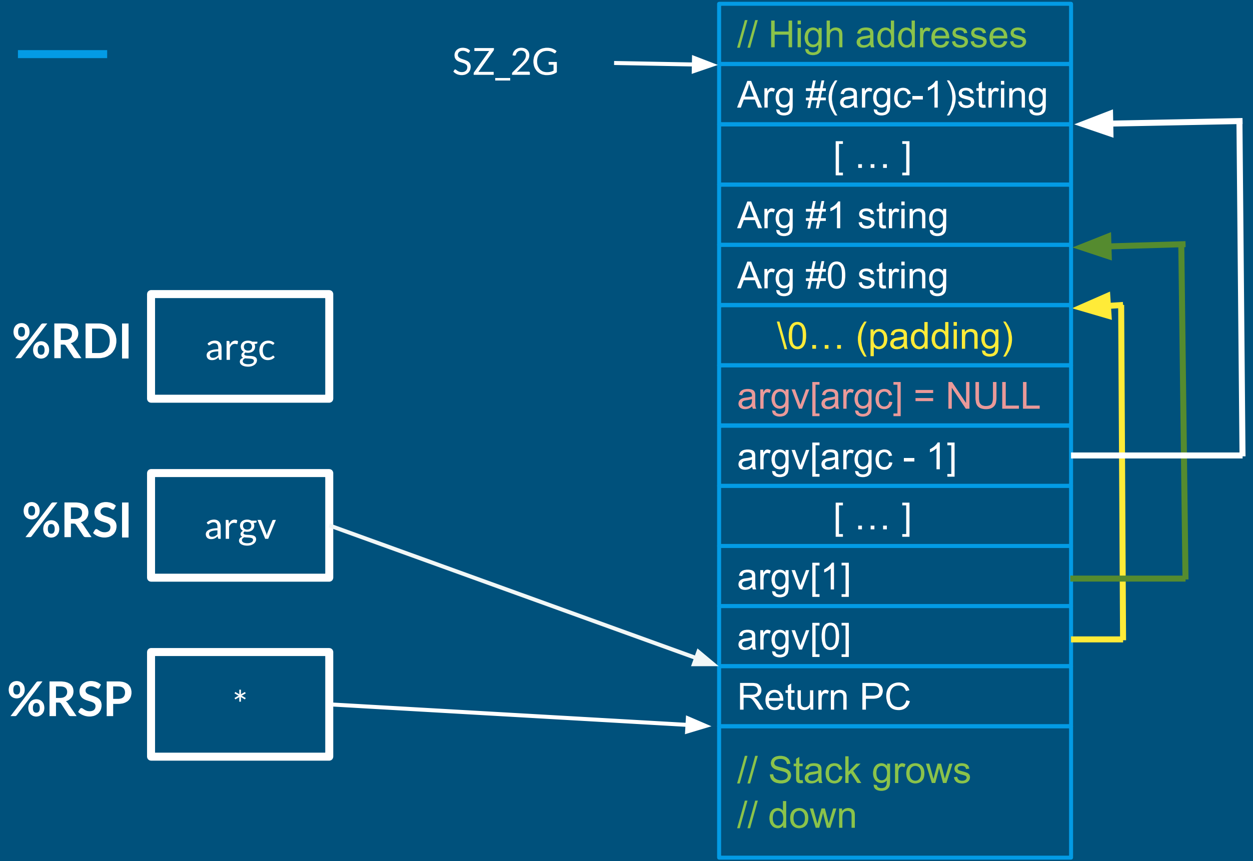
One More Look at main()

exec sets up the function arguments for main!

```
int main(int argc, char** argv)
```

- argc: The number of elements in argv
- argv: An array of strings representing program arguments
  - First is always the name of the program
  - Argv[argc] = 0

One More Look at the Stack For User Process



- Since argv is an array of pointers, %RSI points to an array on the stack
- Since each element of argv is a char*, each element points to a string elsewhere on the stack
- Why? Alignment
- Why NULL pointer? Convention

Exec Impl Hints

- Does the Return PC matter in xk?

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- Does the Return PC matter in xk?
    - Not really :)
    - The return pc is never used, since main() isn't called by anything. It doesn't matter what the value is, as long as it's 8 bytes.

Exec Impl Hints

If you find yourself triple faulting when running the tests:

- Check when you install the new vspace
- Check when you free the old vspace

More Lab 2 Part 2 Test Reminders

- Exec tests require a functioning pipe implementation!
- Just because the pipe tests pass now does not mean they will pass in lab3 and lab4 tests
    - Try to cover as many cases as you can with your pipe design (don’t be lazy)
    - Write clean and easy-to-follow code when integrating the pipe into your File API logic

Lab 2 Open OH