Final Project Update

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Introduction Refresher

- Group Name: Packing the Bits
- Group Members: Jacob Morrison
- Project:
  - “Create a small tool to improve the speed of one of the tools I maintain for work” (midterm explanation)
  - Write a small C program that can be integrated into a tool I maintain for work that improves the speed and reduces redundancy of existing functionality

Project Overview (from Midterm)

- After alignment, an initial quality control is performed
  - Verifies successful sequencing experiment
  - Understand potential biases of data before analysis
- Part of QC is checking “coverage”
- Current process is slow and repetitive
- Create tool to improve speed and reduce number of times the same file is read

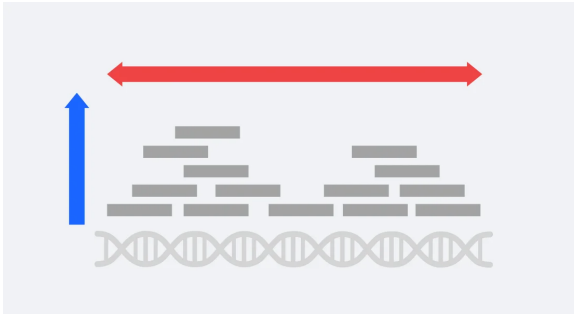
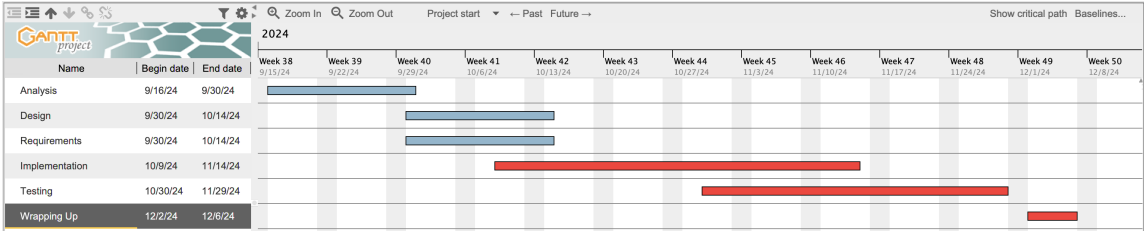


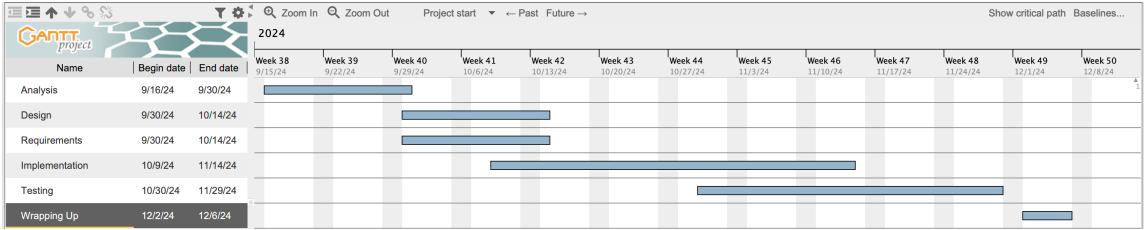
Image from 3billion.io (link)

Midterm Project Timeline



- Had finished Analysis, Design, and Requirements
- Was starting on Implementation

Final Project Timeline



- Finished Implementation early
- Testing was minimal due to outside constraints, but finished on time
  - Will need to be more fleshed out for actual implementation in work project
  - Examples: time comparisons between versions, intentional attempts to break
- Finalized everything slightly ahead of schedule

Changes Since Midterm

- Realized I was creating the wrong outputs
  - Was writing the same output as the tool currently used in the QC script
  - Should actually be the output that is used to create QC visualizations
- Was able to use most of the framework I had at the time
- Simplified how information from individual threads was collected
  - Previous iteration required thread information be collected in order
  - Current version doesn't care about order
- Now writes the correct outputs
  - Formatted correctly, but differences exist in the actual values output
  - These are okay, assuming I make this clear upon integration into tool

Installation and Usage

- **OS**: Linux or macOS
- **Tools**: Cmake ($\geq$3.21), C compiler, Make
- **System dependencies**: cURL, zlib, POSIX threads, git, libdeflate (Linux only)
- Other dependencies downloaded via CMake

```
git clone git@github.com:jamorrison/GVSU-CIS641-PackingTheBits.git
cd GVSU-CIS641-PackingTheBits
mkdir build && cd build
cmake ../
make
cd ../
./build/src/coverage -h
```

Demonstration

Thank You