RSA Assignment

Install on Ubuntu 18.04

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 # Install dependencies
sudo apt install cmake gcc libntl-dev
git submodule init
git submodule update

# Build
cmake -Bbuild -H.
cmake --build build/

# Run test cases
bin/rsa_tests

# Print help
bin/rsa help

# Generate public-private key-pairs with 4096-bits modulo N
bin/rsa generate --size 4096 \
                 --public-key /path/to/public-key \
                 --private-key /path/to/private-key

# Encrypt a file
bin/rsa encrypt --public-key /path/to/public-key \
                --input /path/to/input-file \
                --output /path/to/encrypted-file

# Decrypt a file
bin/rsa decrypt --private-key /path/to/private-key \
                --input /path/to/encrypted-file \
                --output /path/to/decrypted-file

# Encrypt and decrypt using pipe command
echo 'Hello World!' | \
bin/rsa encrypt --public-key /path/to/public-key | \
bin/rsa decrypt --private-key /path/to/private-key
# Should print 'Hello World!'
```