CSE12 – Computer Science & Engineering 12 (and Lab)

Computing Systems and Assembly Language Programming

Prof. Sagnik Nath

Winter 2021

Hi, I'm Sagnik

- A bit about me:
  - UG-> Indian Institute of Engineering and Science technology, India
  - Graduate-> Renssalaer Polytechnic Institute, NY
  - Directly got into academic after PhD
  - Just got out of teaching CS120 F2020

Development of a Methodology for Automatic Placement and Routing of SFQ Circuit Designs and an Associated Standard Cell Library
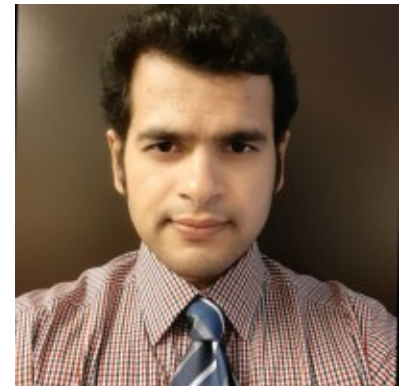
Authors	Sagnik Nath
Publication date	2020
Institution	Rensselaer Polytechnic Institute
Description	Since the early 1990s, Single flux quantum (SFQ) logic has been wielded as a worthy alternative to power efficient high performance computing. Many significant circuit demonstrations have been made in this technology, such as single gate clock speeds of upto 750 GHz, 8-32 bit adders, multipliers, ALU at clock speeds of 20 to 30 GHz and Analog-to-digital converters with sample rates of 40 GHz, all by several research efforts. However, this new technology has presented some design challenges as well: SFQ does not have the same density as CMOS circuits. They still need an effective power efficient solution for data storage, and most importantly do not yet have a universally accepted optimal circuit design approach.
Scholar articles	Development of a Methodology for Automatic Placement and Routing of SFQ Circuit Designs and an Associated Standard Cell Library S Nath - 2020

What is CSE 12?

CSE12: Computer Systems and Assembly Language

Introduction to computer systems and assembly language and how computers compute in hardware and software. Topics include digital logic, number systems, data structures, compiling/assembly process, basics of system software, and computer architecture. May include C language. Students with no prior programming experience are strongly recommended to take course 3, Computer Science 5J, Computer Science 5P, Computer Science 10, or equivalent before taking this course.

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CSE100

represent

bit

byte

CSE 120

The Instructional Team

- Instructor:
  - Sagnik Nath(sanath@ucsc.edu)
- Teaching Assistants

Wang	Yusu	ywang646@ucsc.edu
Lei	Christian	
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Serrano	Kevin	
Port	Andrew	aaport@ucsc.edu

- MSI Tutor
  - Thomas Schork , tschork@ucsc.edu
  - "Tutoring services will start Wednesday, January 13th and I will make a piazza announcement on that day" – email correspondence

Our online presence

- https://canvas.ucsc.edu
  - Assignments
  - Calendar
- https://https://piazza.com/class/kji3k7h116h2nh
  - Announcements
  - All questions should go here.
  - Public can be anonymous from classmates
  - Private is to contact instructional staff only
  - DO NOT POST CODE – IT IS ACADEMIC DISHONESTY
- Google Drive and Forms
  - Shared Files (e.g. syllabus, reading schedule)
  - Lab documentation upload
  - Regrade requests

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How to succeed in CSE 12

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Tutoring and other help options

- Show up to lectures, lab help sessions!

- One TA plus at least 2 tutors for individual help

  - ★ Don't wait until last minute, can have queues!

  - ◆ Office hours will be distributed across the entire week

- MSI Tutors

  - ◆ UCSC provides additional group and individual tutoring through the MSI (announcement previously)

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CSE 12 vs 12L

- CSE 12 and 12L are ONE COURSE
  - ◆ If you are "only" in 12L, you must take the exams too.
  - ◆ If you are "only" in 12, you must ~~do~~ all the labs too.
  - ◆ You must attend lecture to understand lab requirements.
- You will receive the same grade for CSE 12 and 12L.

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These are quite challenging times..

When you have to wake up to not only a pandemic...

..but also online classes

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Considerations during COVID

- You may set up Discord groups to enlighten each other on course topics but… SHARING of HW/quiz/exam solutions, SHARING of code, etc NOT allowed!

- TAs have been tasked to patrol cyberspace and look out for suspicious activity.

- Midterm can be taken at any time between 9:00am and 11:59 pm on the date of the exam (Not allowed for final though)

- I will try to be as accommodating as possible! Please bear with me throughout the quarter

During lectures

- Will always be through Zoom

- I can't always see the messages on Chat as they speed through

- If you have questions, please use "Raise Hand" feature

- Please alert me if you notice anything glaringly wrong during lectures (e.g I forgot to enable recording, or the lecture time is up)

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Primary Textbook

- Will be downloaded from zybooks.com
- Will provide details in a follow up email by today.
- Cost of the book is $39
- This book will also be the basis of lecture based assignments(quizzes and HW) that will add to your grade
- Secondary helpful textbooks mentioned in the syllabus doc in google drive

Lab sessions

- We won't have actual physical lab sessions.

- Lab0 wont have any lab hours at all (Video tutorial showing solutions will be shared; you only have a copy the steps)

- We are still formalizing the approach to lab Most likely setup: Lab video demos will be provided and then you may approach the TAs and tutors during their office hours for help.

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Academic Dishonesty

- The working definition for cheating is presenting someone else's work as your own.

- Here are a few scenarios, for each of these let me know if you think this is cheating (per definition above) or not:

- For each Scenario please raise your hand if you think it is cheating.

UCSC Academic Misconduct Penalty Levels

1. Warning letter and other potential ramifications
2. Mandatory Suspension
3. **Permanent Dismissal from the University of California.**

- Typically the 1st time is a level one. The next infraction will be a level two. A grievous 1st time case can also be counted as a level two directly.

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Scenario 1

- You have a friend in your sorority/fraternity who took the class two years ago, and they passed on the solutions they implemented for the labs. You do the lab with their code open in front of you, and change details around as appropriate, but essentially copy their code.

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Scenario 1

- You have a friend in your sorority/fraternity who took the class two years ago, and they passed on the solutions they implemented for the labs. You do the lab with their code open in front of you, and change details around as appropriate, but essentially copy their code.

- This is an academic violation because the code is theirs not yours. It does not represent your original work.

- Remember the TAs have been attached to this course for over 6 years! So they have a huge record of student work from the last 6 years. **Will run plagiarism check** on your submitted work against past student work

Scenario 2

- You have a friend in your sorority/fraternity who took the class two years ago, and they passed on the solutions they implemented for the labs. Before starting your lab assignment, you look through their solution to get inspiration and ideas how to implement the solution.

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Scenario 2

- You have a friend in your sorority/fraternity who took the class two years ago, and they passed on the solutions they implemented for the labs. Before starting your lab assignment, you look through their solution to get inspiration and ideas how to implement the solution.

- This is not as obvious but still an academic violation. Again the code base you are using is not your own.

Scenario 3

- You and a friend decide to work together on the assignment. You code together, and submit the same files.

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Scenario 3

- You and a friend decide to work together on the assignment. You code together, and submit the same files.

- This is also an academic violation. The work you submitted is not your own.

Scenario 3(a)

- You and a friend decide to work together on the assignment. You code together and submit the same files (except your files note your collaboration with your friend).

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Scenario 3(a)

- You and a friend decide to work together on the assignment. You code together and submit the same files (except your files note your collaboration with your friend).

- This is not an academic violation. Though you will receive a zero for this assignment if the assignment does not allow collaboration.

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Scenario 4

- You and a friend decide to work together on the assignment. You discuss how to approach the different sections, what strategies you might use, and help each other clarify what the assignment demands. You go off and code on your own, and submit your individual files.

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- You and a friend decide to work together on the assignment. You discuss how to approach the different sections, what strategies you might use, and help each other clarify what the assignment demands. You go off and code on your own, and submit your individual files.

- This is **perfectly fine!** You are not discussing specific details but what is required of the assignment.

Scenario 4(a)

- You and a friend decide to work together on the assignment. You discuss how to approach the different sections, what strategies you might use, and help each other clarify what the assignment demands. You go off and code on your own, and submit your individual files (noting in the README that you discussed the assignment with your friend).

Scenario 4(a)

- You and a friend decide to work together on the assignment. You discuss how to approach the different sections, what strategies you might use, and help each other clarify what the assignment demands. You go off and code on your own, and submit your individual files (noting in the README that you discussed the assignment with your friend).

- This is even better when there are similarities in your files we know who you worked with.

Scenario 5

- You and a friend decide to work together on the assignment. You discuss how to approach the different sections, what strategies you might use, and help each other clarify what the assignment demands. You write your code sitting next to each other and checking in to make sure you are not making mistakes.

Scenario 5

- You and a friend decide to work together on the assignment. You discuss how to approach the different sections, what strategies you might use, and help each other clarify what the assignment demands. You write your code sitting next to each other and checking in to make sure you are not making mistakes.

- This is an academic violation. You are sharing code with each other and the work is no longer your own. Both of you fail.

- (noting in the README that you programmed together will get you a zero on the assignment, but not an academic violation).

Scenario 6

- You are struggling with the assignment, hire someone one the internet to do the programming assignment for you. After getting back the program, you study it carefully and make sure you understand what the code does before turning it in.

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Scenario 6

- You are struggling with the assignment, hire someone on the internet to do the programming assignment for you. After getting back the program, you study it carefully and make sure you understand what the code does before turning it in.

- This is an academic violation. The work you turned in is not your own (and expect to be blackmailed by the programmer).

Scenario 7

- You are struggling with the assignment, and search the web for solutions. You find a solution or something rather close to it on GITHUB. You use this code but make some small alterations to it.

Scenario 7

- You are struggling with the assignment, and search the web for solutions. You find a solution or something rather close to it on GITHUB. You use this code but make some small alterations to it.

- This is an academic violation. The work is not your own. Further, it is likely that someone else will also find the same work and you will both get flagged for it.

Scenario 8

- You are struggling with the assignment, and go to one of the "cheating" sites like CourseHero which has solutions to class assignments and find a solution to the lab.

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Scenario 8

- You are struggling with the assignment, and go to one of the "cheating" sites like CourseHero which has solutions to class assignments and find a solution to the lab.

- This is an academic violation. The work is not your own.

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Special needs (DRC)

- Students with special needs should refer to the Disability Resource Center

- Notify me and Majid (TA) **within first week of class**

- Use email subject "DRC CSE12 <yourcruzid>"

- I will **NOT** entertain DRC time limit for HW!

e.g. 2x for midterm, timed quiz,final but not for HW submission time, e.g. 1 week submission will not become 2 weeks!

This would severely impact the pedagogy for this class

- Confirm with me and SOE office at least 1 week before each exam so we may try to accommodate your needs

Lab 0 – DUE Next Monday 11:59pm (tentatively)

- **GIT Workflow**
  - Go through GIT tutorial (provided in syllabus doc in google drive)
  - Create an a GITLAB account
    https://git.ucsc.edu/users/sign_in
    (use your cruzID!Else it will NOT work)
    PLEASE DO THIS BY END OF TODAY!
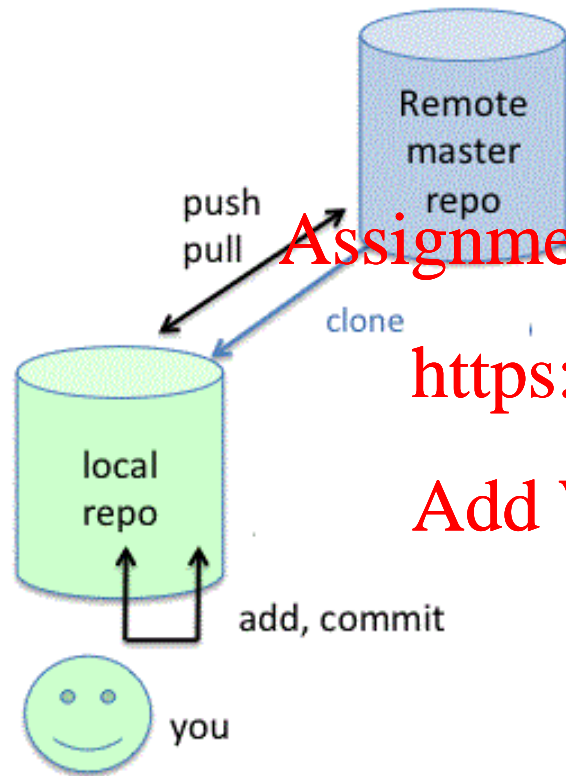   - Only then can we create your git repository.
  - Submit the README.txt and directories
    - Submission means that you agree to the terms of responsibility statement
    - You cannot continue in the class without doing this
    - All future assignments will be submitted this way (and only this way)

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Lab0: A high level visualization

- GIT Workflow
- Will upload Lab0 documentation to google drive by tomorrow
- Majid (an expert on creating good tutorial videos) will create the tutorial video literally showing you the solutions to Lab0. You only have to follow them
- Am trying to create TA Lab office hours spreadsheets early as possible
- If you have problems even after following the video, please use Piazza publicly (so that others may benefit from the question as well)

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