Developing Soft and Parallel Programming Skills Using Project- Based Learning

SPRING 2019

ARM Strong

Group Members:

Ailany Icassatti, Hashim Amin, Isaiah Smith,

Sivasubramaniyan Mourougassamy,

Thang Nguyen & Toan Le

o Planning and Scheduling

- **Work Breakdown Structure**

Assignee Name	Email	Task	Duration	Dependency	Due Date	Notes
Ailany Icassatti	aicassatti1@student.gsu.edu	1. Picked up Rasberry Pi 2. Task #1 - group name and work structure table 3.Task #5 - put the final report together 4. Task #6 – made videos with group members	1. 20 minutes 2. 2 hours 3. 5 hours 4. 1 hours	2. Group voting on options provided and each member selecting tasks 3. Everyone completing their tasks to be added to the report 4. Group meeting had to happen	1. 02/28/19 2. 02/08/19 3. 02/08/19 (by 11:59 pm) 4. 02/05/19	1. I missed the original pickup date, picked it up on 02/04. 2.Gave group few options and we voted on Slack
Hashim Amin	hamin3@student.gsu.edu	1. Task #1 – wrote my tasks on the work structure table 2. Task #3 -reviewed rough draft and suggested any necessary edits 3. Task #5 -added screenshots to appendix 4. Task #4: Input on lab report for ARM Assembly Programming process 5. Task #6 – made videos with group members	1. 30 minutes 2. 30 minutes 3. 30 minutes 4. 2 hours 5. 1 hour	2. Task 3 rough draft (has to be done prior) 3. Slack, Github (have to be done prior) 4. Rasberry pi had to be up and running 5. Group meeting had to happen	1. 02/08/19 2. 02/06/19 3. 02/07/19 4. 02/08/19 5. 02/05/19	

Isaiah Smith	smith27@student.gsu.edu	1. Task #1 – wrote my tasks on the work structure table 2. Task #3 –Wrote the first draft and the final after everyone reviewed it 3. Task #6 – made videos with group members	1. 30 minutes 2. 5 hours 3. 1 hours	2. Given time to all group members to review and give their input into the first draft 3. Group meeting had to happen	1. 02/08/19 2. 02/07/19 3. 02/05/19	After finishing the first draft I emailed everyone a copy of the first draft. After getting everyone's input, I added task 3 to the report and on slack.
Sivasubramaniyan Mourougassamy	smourougassamy1@student.gsu.edu	1. Task #1 – wrote my tasks on the work structure table 2. Task #6 – a. Made videos with group members b. Compiled the video footages and edited, uploaded to Youtube	1. 30 minutes 2. Part a. 1 hour Part b. 5 hours editing, rendering, and uploading	Lightworks editing software (free version) 3. Group meeting had to happen	1. 02/08/19 2. Part a. 02/05/19 Part b. 02/07/19	Built in windows video editor didn't have many capabilities so had to install lightworks free version and work

Thang Nguyen	tnguyen469@student.gsu.edu	1. Task #4 - Rasberry PI installation and assisted with ARM programing 2. Task #6 – made videos with group members	1. 6 hours 2. 1 hour	1. Getting the PI in working condition and become familiar with it. Buying a new SD card 2. Group meeting had to happen	1. 02/06/19 2. 02/05/19	We had problems with our original Sd card
Toan Le	tle96@student.gsu.edu	1. Task #1 – wrote my tasks on the work structure table 2. Task #2 – a. Created Slack account, sent invitations, took screenshots. b. Created Github account, the project, the file Readme and took the screenshot. 3. Task #6 – Part a. made videos with group members Part b. created the YouTube channel	1. 30 minutes 2. 2 hours 3. 2 hours	2. Members' response from Slack's invites 3. Group meeting had to happen	1. 02/08/19 2. 02/04/19 3. Part a. 02/05/19 Part b. 02/07/19	

o Teamwork basics

- **Learning Teamwork Basics**

Q1: What to do to get the task accomplished and the team members' satisfaction high?

A: Working with a good team. Team members need to know their assigned work and due date. They also need to communicate with each other regarding the progress or any issues regarding their tasks, so the team can tackle problems quickly. Everyone should be on the same page at each states of the project. Everyone can have their own ideas, but everyone must agree on the goal.

Q2: Answer all the questions in the Work Norms, Facilitator Norms, Communication Norms using your own words and your own context.

A: Work Norms: Each person will be given a chance to "call dibs" on a particular task that they want, and any tasks will be distributed out in order to balance out the work load. If someone cannot follow the deadline, they must contact the team coordinator quickly. The coordinator will assign another member to help that member finish the task on time. everyone will post their finished tasks on Slack, so everyone can review. If there is a differing opinion, they can show those in the group why they think their approach is more suitable. The coordinator has final say on decisions. While everyone has different work habits, as long as everyone hits the deadline, there will be no issue. Though it is a good idea to leave some buffer for due dates in case something is not done on time. If problems arise, the coordinator needs to get into touch with the group member.

Facilitator Norms: The team coordinator is the ideal candidate for team facilitator as the duties of both roles coincide well with each other. If the team coordinator does not want to be the facilitator then it will go to someone who volunteers. If no one volunteers for the position of facilitator, we will more than likely pass it down to the next person on the team list. The role of the facilitator is to keep the group on track. Not necessarily lead it. This includes keeping the group focusing on the task at hand, ensuring everyone participates, keeping everyone on the agreed time frame, suggesting alternative procedures or ideas when the team runs into a problem, helping team members confront problems, summarizing and clarifing team decisions.

Communication Norms: Generally, the team will try to meet up at least once every week after class to make team decisions as well as make sure everyone is on the same page. The group will try to communicate through email and through Slack primarily. It is also crucial that the team has multiple ways of getting into contact with each other in case problems arise.

Consideration Norm: eating or drinking is fine during meetings as long as members can keep everything clean and tidy during and after meetings. Members should not smoke during meetings because other members may feel uncomfortable. Norms can be changed if the majority of the team is not comfortable. New rules will be set based on collecting members' idea and leader's decision.

Q3: As a team, select two cases out of the four mentioned in Handling Difficult Behavior. (use your own words and your own context)

Difficult Behavior	**How to Handle it**
Too Quiet	If a person is being very quiet, it is a good idea to talk to the person and make them feel more welcoming to the group and get them to open up more. The coordinator should make sure that everyone knows that his/her ideas and opinions are valued.
Argues	If the person or people in question are just frustrated, just give them time to cool off. They'll be more amenable in the future. If the person continues to argue, someone should talk to them privately so they can get their feelings across in a non-destructive/distractive manner. If they continue to argue contact the instructor to see if they can help solve the problem. Constructive arguments are welcome, and the coordinator will ensure arguments don't get personal.

Q4: When making decisions, if the team is having trouble reaching consensus, what should you do? (Use your own words and your own context)

A: The first thing to do is to let everyone have their chance to give their piece in order to have the chance of convincing everyone else. If not, everyone takes a quick break to think about their position and comes back to vote or debate again. We repeat this process until a solution is decided upon. If a solution is not agreed upon, then the team facilitator will be the one to make the final decision.

Q5: What should you do if person may reach a decision more quickly than others and pressure people to move on before it is a good idea to do so?

A: Some people tend to make their decisions quickly while others tend to take their time. Politely remind the person that this is a group project and that everyone has a say in how the group is run and how decisions are made. If it continues to be a problem the facilitator, coordinator, or a group member should talk to them privately.

Q6: What happens if most people on the team want to get an "A" on the assignment, but another person decides that a "B" will be acceptable?

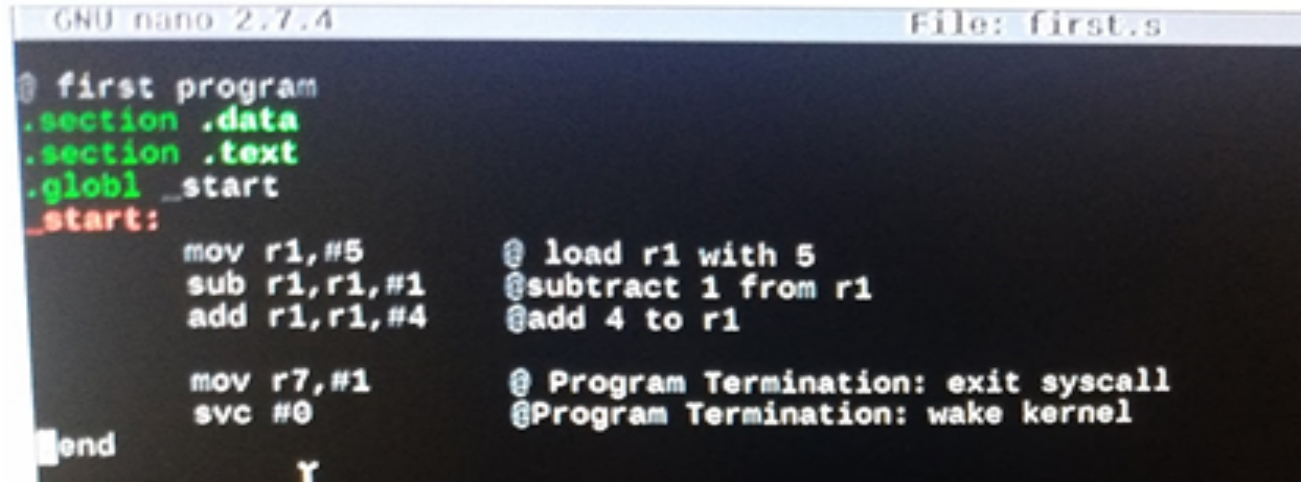
A: First, explain the person why they should work harder for a better grade then ask the person to work harder to improve their grade as well as the grade of everyone in the group. If that doesn't work, have

someone pick up the slack and privately talk to the instructor about the how the person thinks a B is acceptable so the instructor grades accordingly.

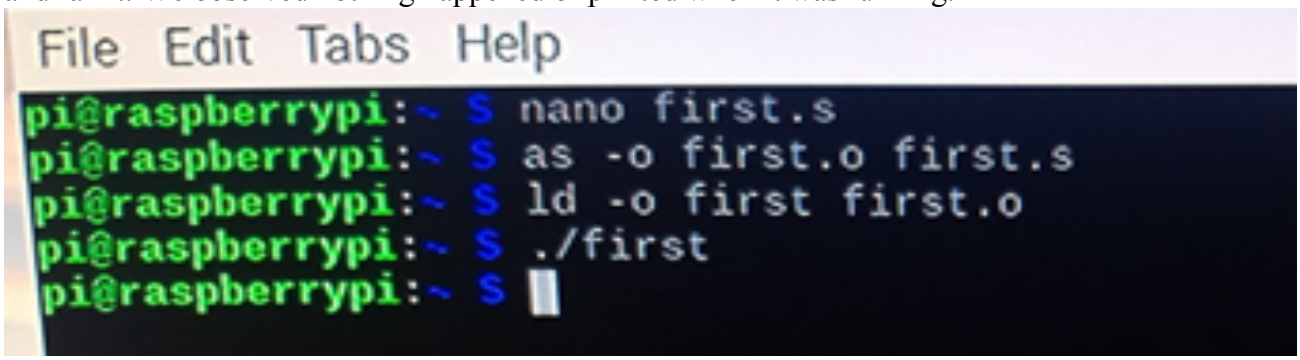
○ Raspberry PI Installation and ARM Assembly Programming

- **Part 1 Lab Report**

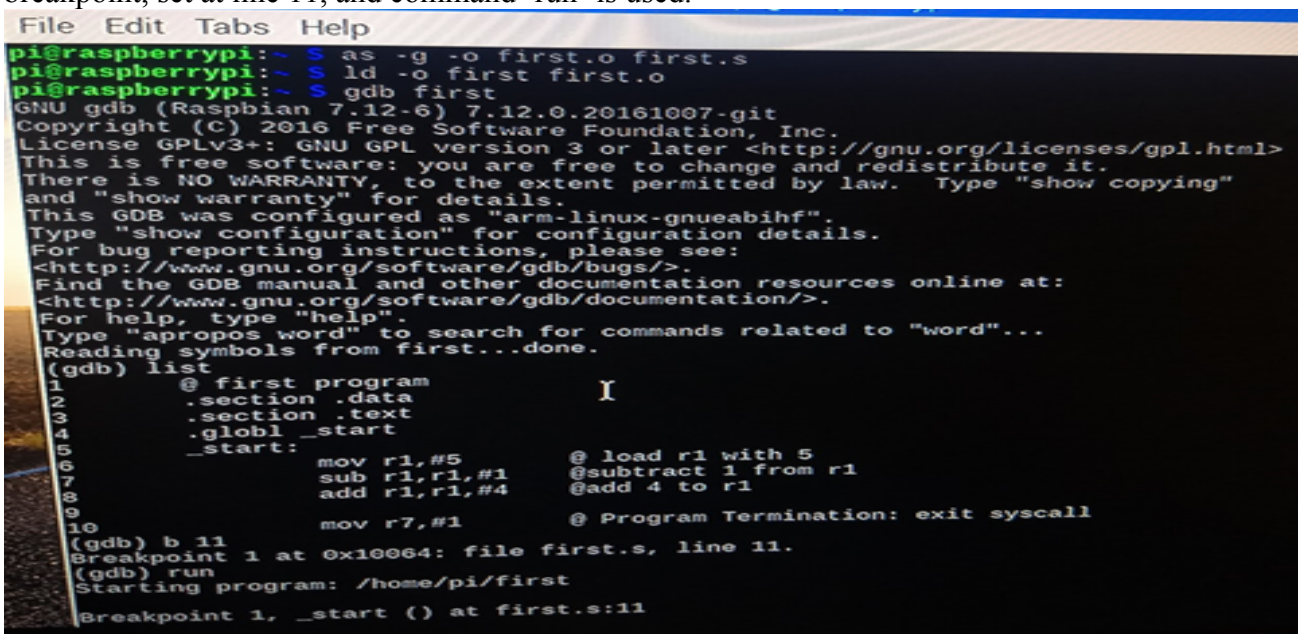
Pic #1 - The sample code was written using nano.



Pic #2 - We assembled the source code to the object files and linked the object files into executable file and ran it. We observed nothing happened or printed when it was running.



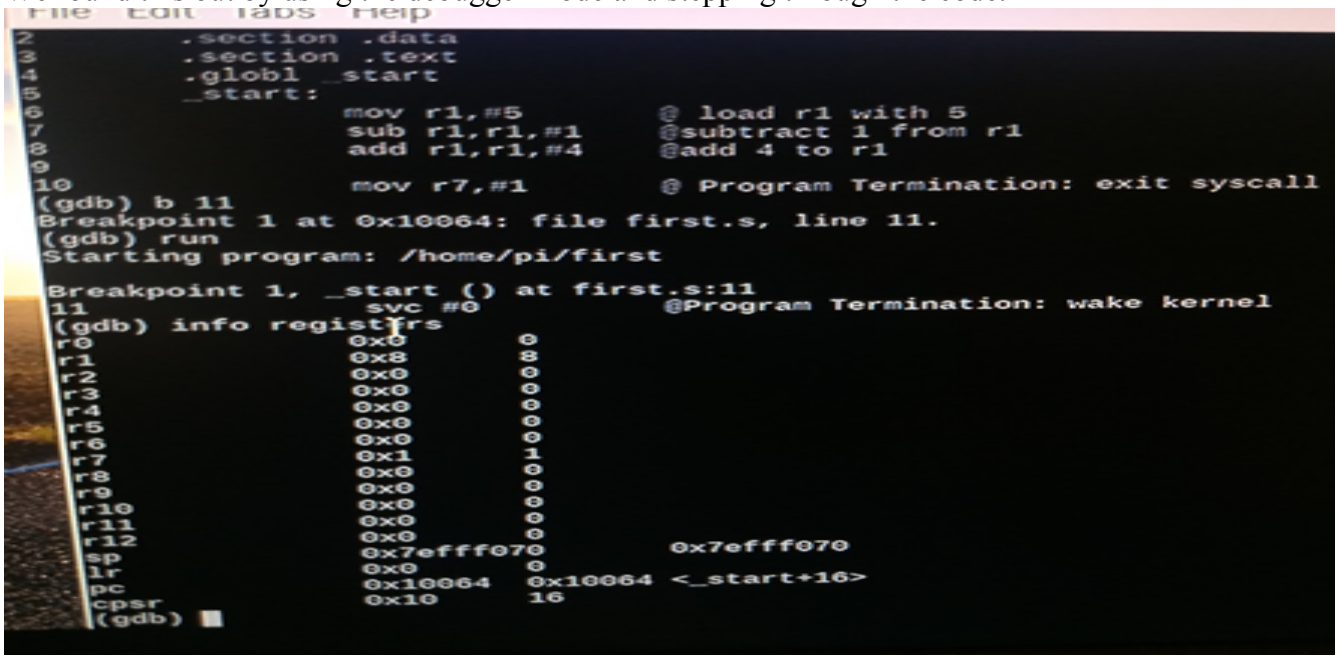
Pic #3 - We assembled the source code with -g to the object file, linked the object files into an executable file again and ran it in debugger mode. We used the 'list' command, to show the code. The breakpoint, set at line 11, and command 'run' is used.



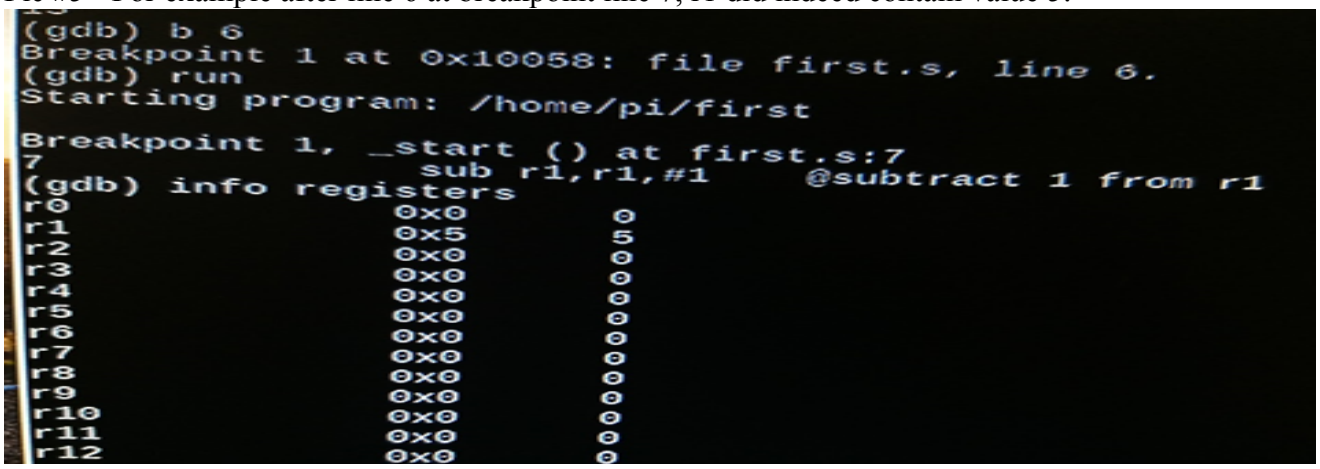
Pic #4 - We used the 'info register' to show all the registers. We observed register 1 contains 8 and register 7 contains 1. This is because:

- r1 will have value of 5 after line 6. (mov r1,#5)
- r1 value is 4 after line 7, because 5 – 1= 4 then stored in r1. (sub r1,r1#1)
- r1 value is 8 after line 8, because 4 + 4= 8 then stored in r1. (add r1,,r1#4)
- R7 will have value 1 after line 10. (mov r7,#1)

We found this out by using the debugger mode and stepping through the code.

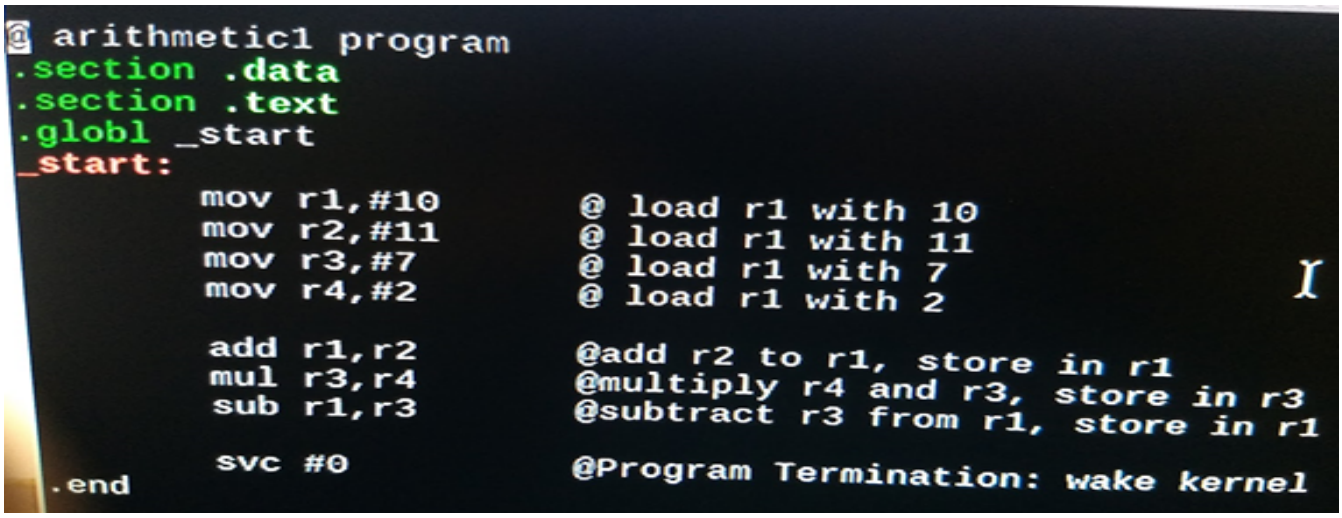


Pic #5 - For example after line 6 at breakpoint line 7, r1 did indeed contain value 5.

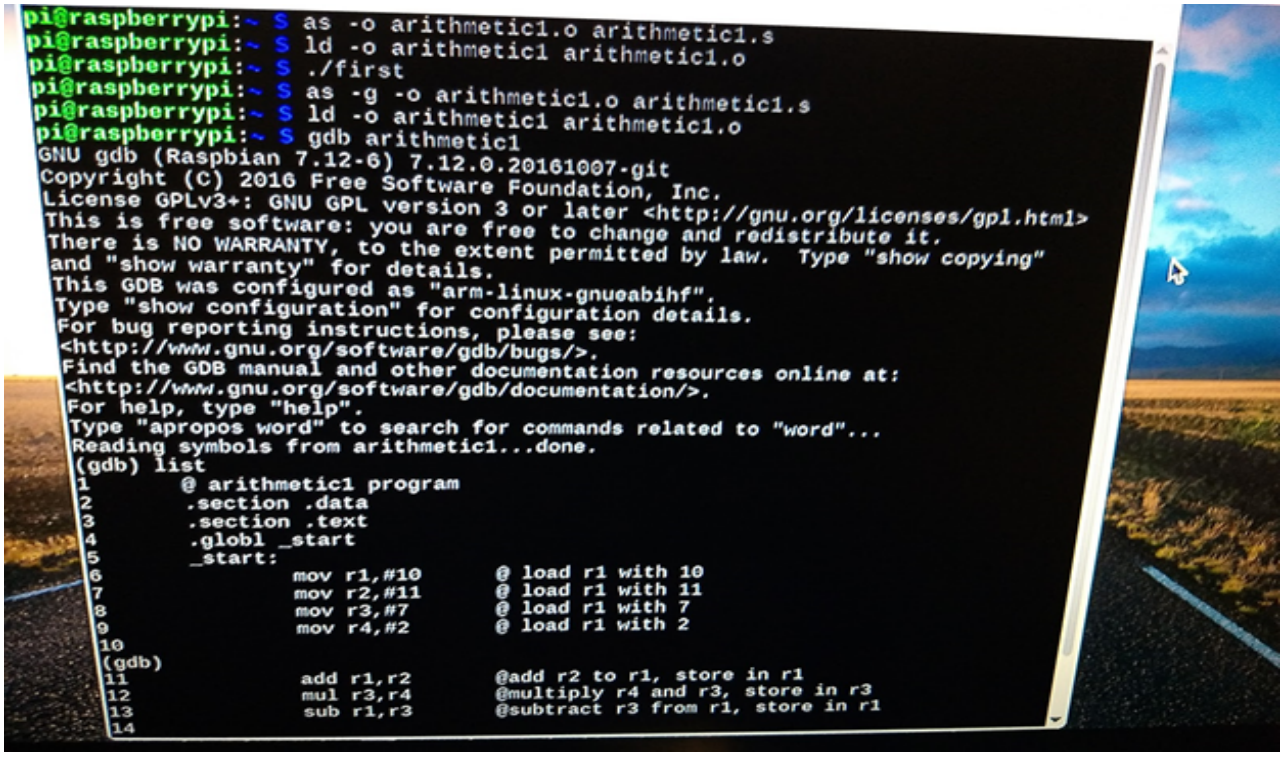


- **Part 2**

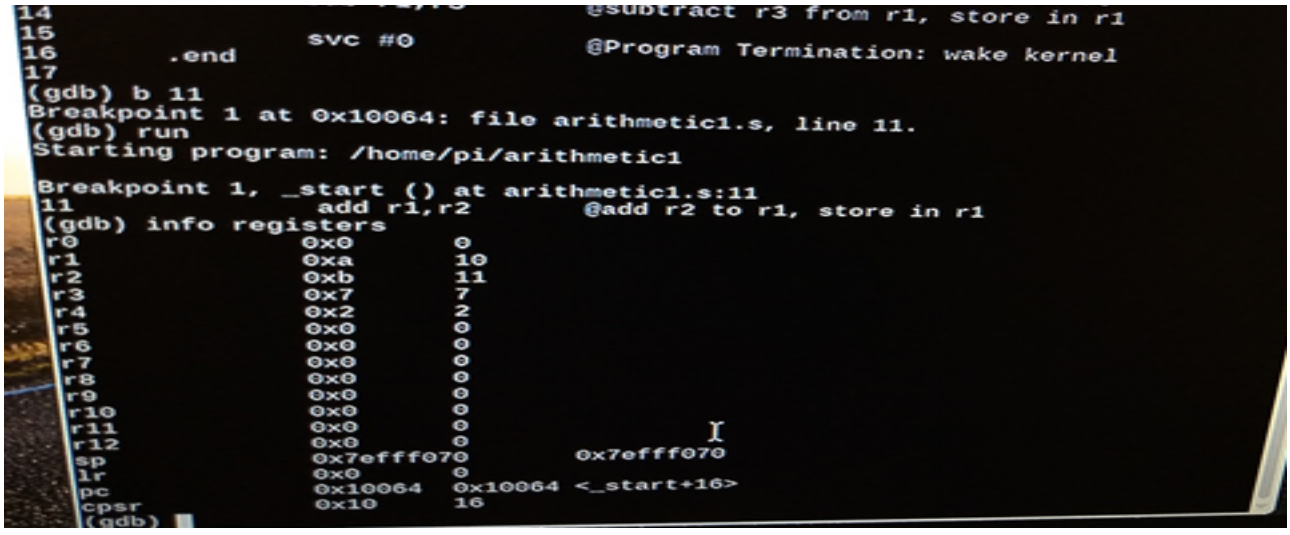
Pic #6 - Our program to solve the equation, A = (A + B) − (C *D) where A=10, B=11, C=7, and D=2
NOTE: some "load r1.." should be load r2, r3, r4



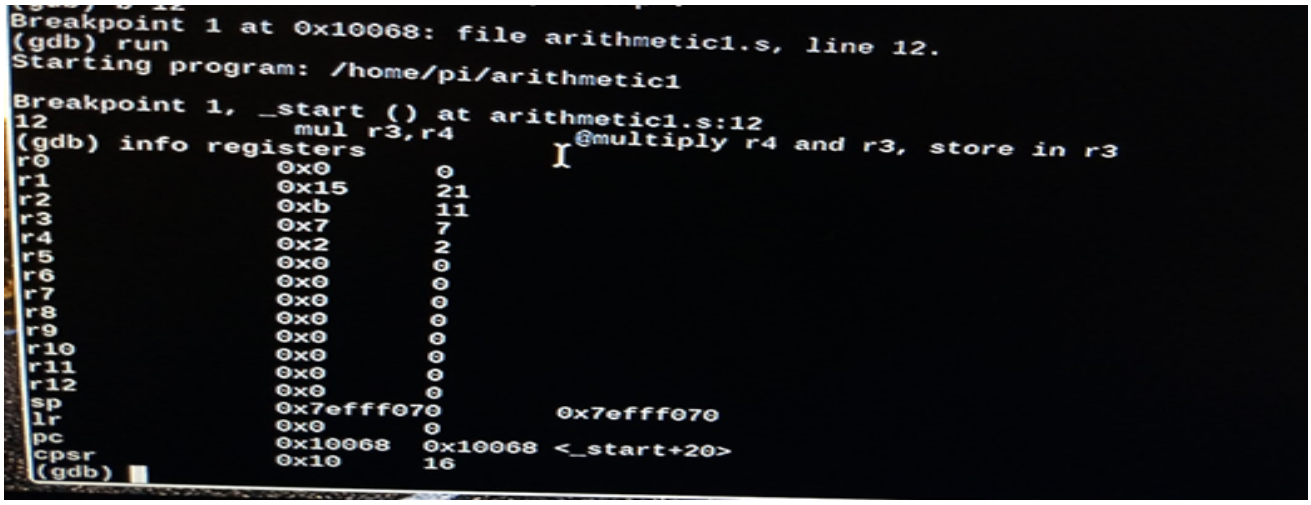
Pic #7 - At the top, we assembled the source code to Object file and Linked the Object files into Executable file and ran the program. Nothing happen again. Then we assembled with -g and Linked execute file and Ran the gdb Debugger. At the bottom we used the 'list' command in the code.



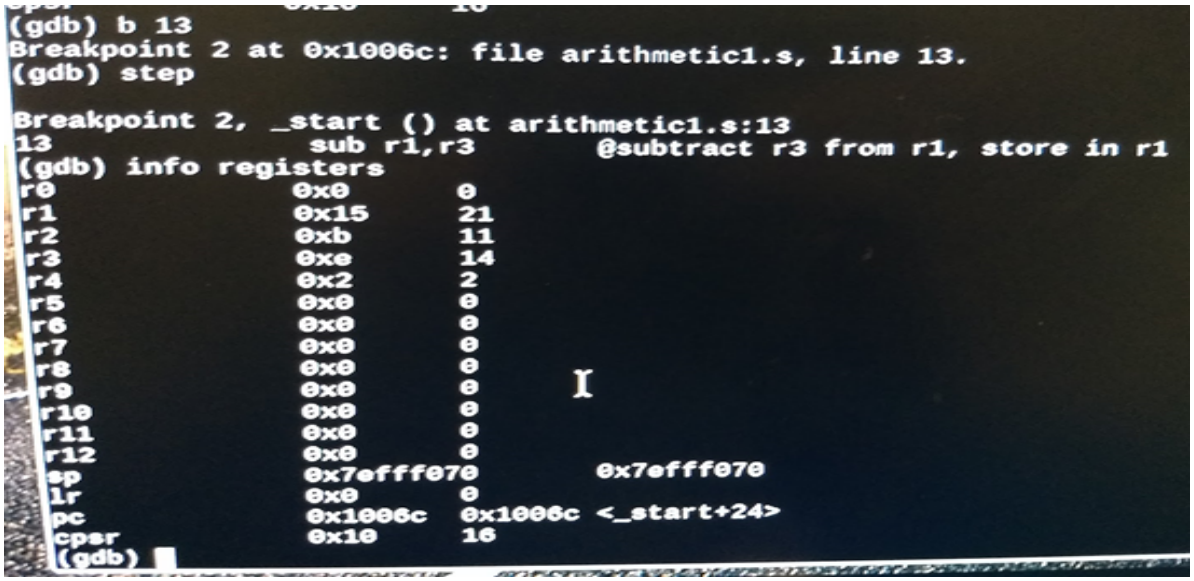
Pic #8 - At the top break point inserted at line 11. Here r1 value is 10, r2 value is 11. R3 value is 7, and r4 value is 2 after line 10



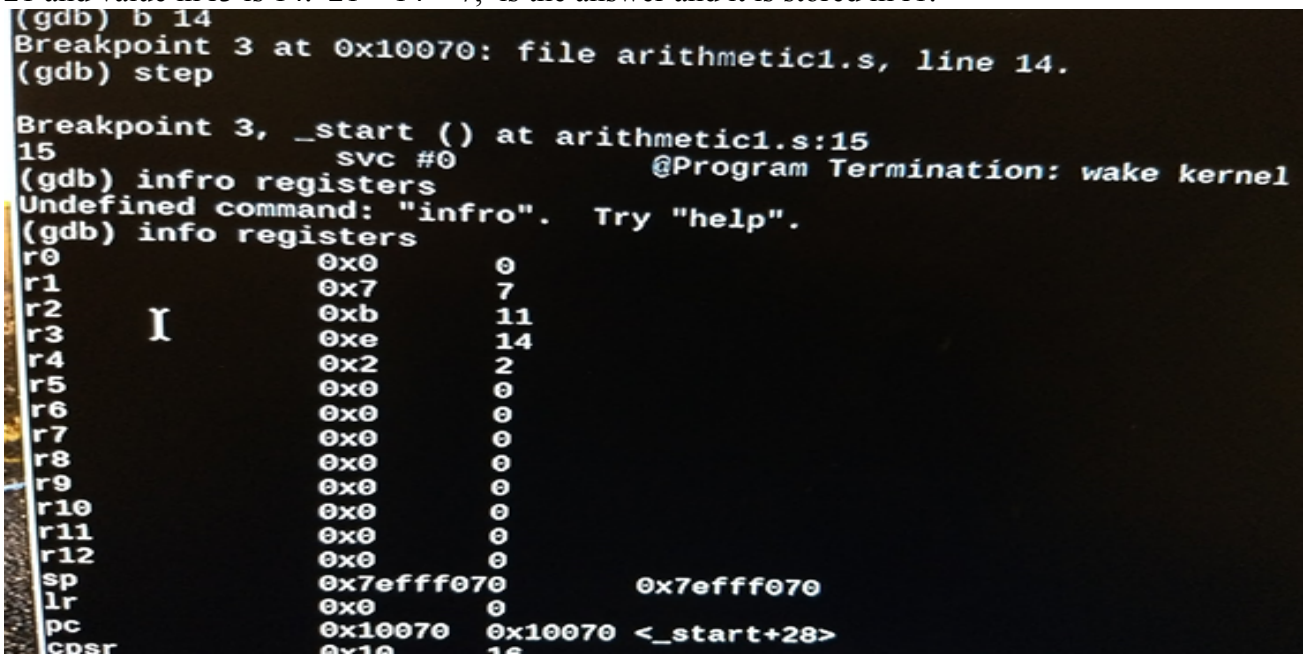
Pic #9 - At the top, break point inserted at line 12. Value in r1 is now 21 after line 11 (add r1,r2). This is because value in r1 used to be 10 and value in r2 is 11. 10 + 11 = 21, stored in r1.



Pic #10 - Break Point is inserted at line 13. Value in r3 now 14 after line 12 (mul r3,r4). This is because value in r3 used to be 7 and value in r4 is 2. 7 * 2 = 14, stored in r3.



Pic #11 - Break Point is inserted at line 14. Value in r1 now 7 (sub r1,r3). Because value in r1 used to be 21 and value in r3 is 14. 21 – 14 = 7, is the answer and it is stored in r1.



- Appendix: have the links (slack, GitHub and video links and screenshot)

Slack: https://armstrongprojecteam.slack.com/messages/CFUT6BUJ1/
GitHub: https://github.com/ARMStrongTeam/RasberryPI
Introduction Video: https://youtu.be/lf0eapJ95ho

- **Github README:**

README.md

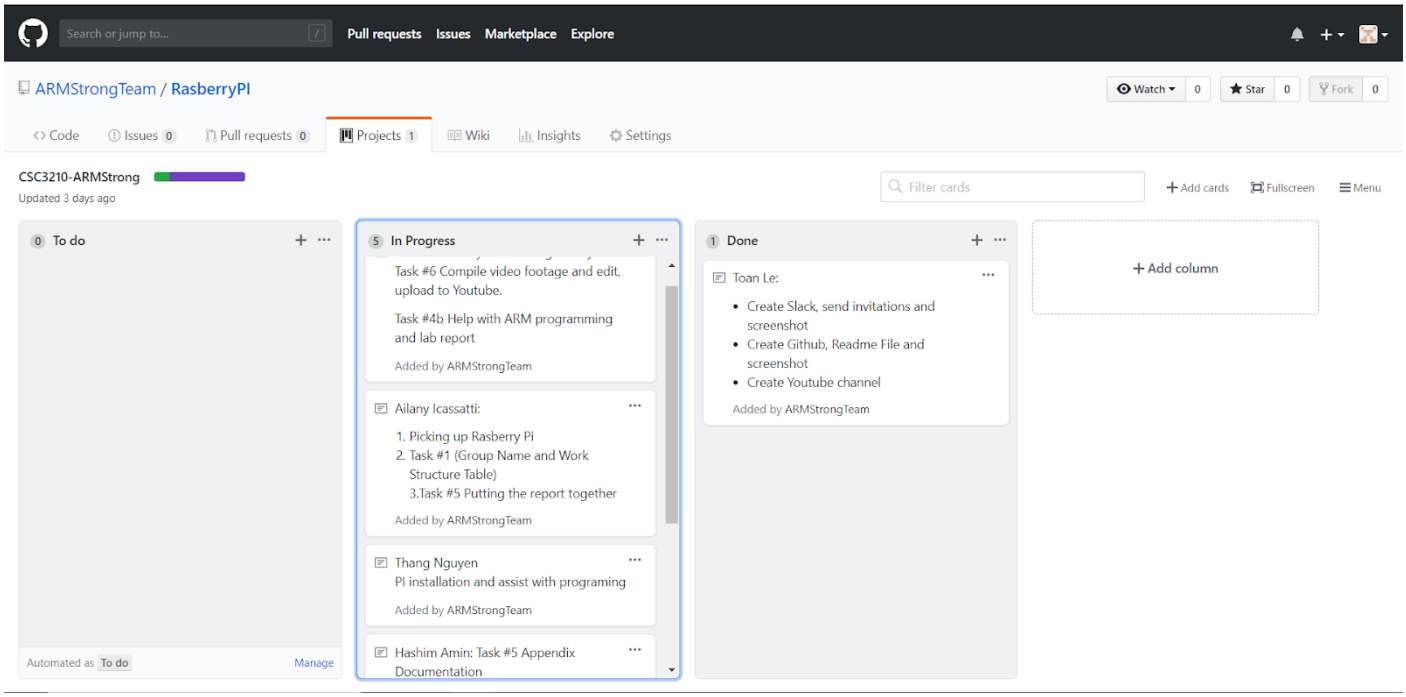
RasberryPI

PROJECT TITLE: Introduction to RasbberyPI and Application

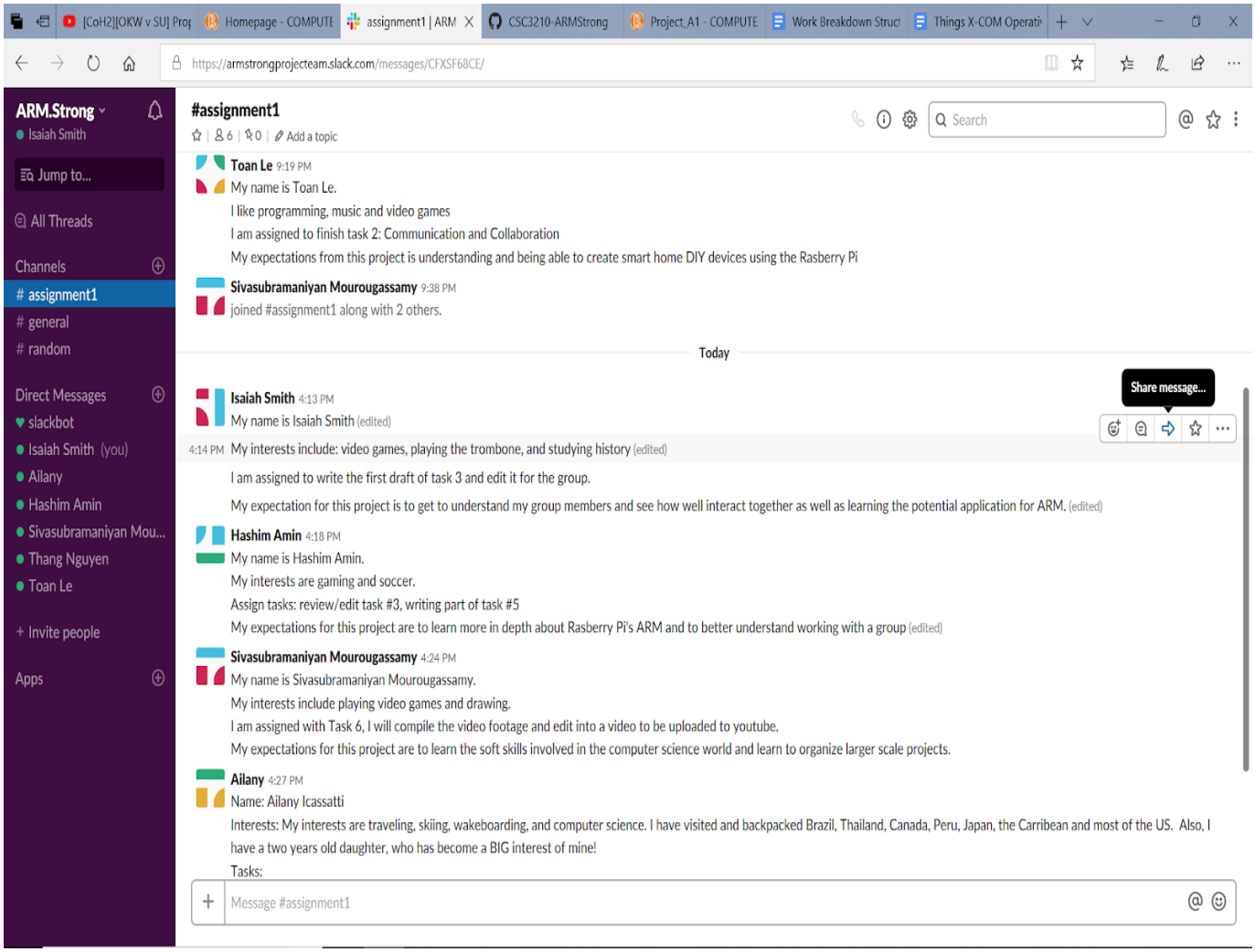
TEAM MEMBERS

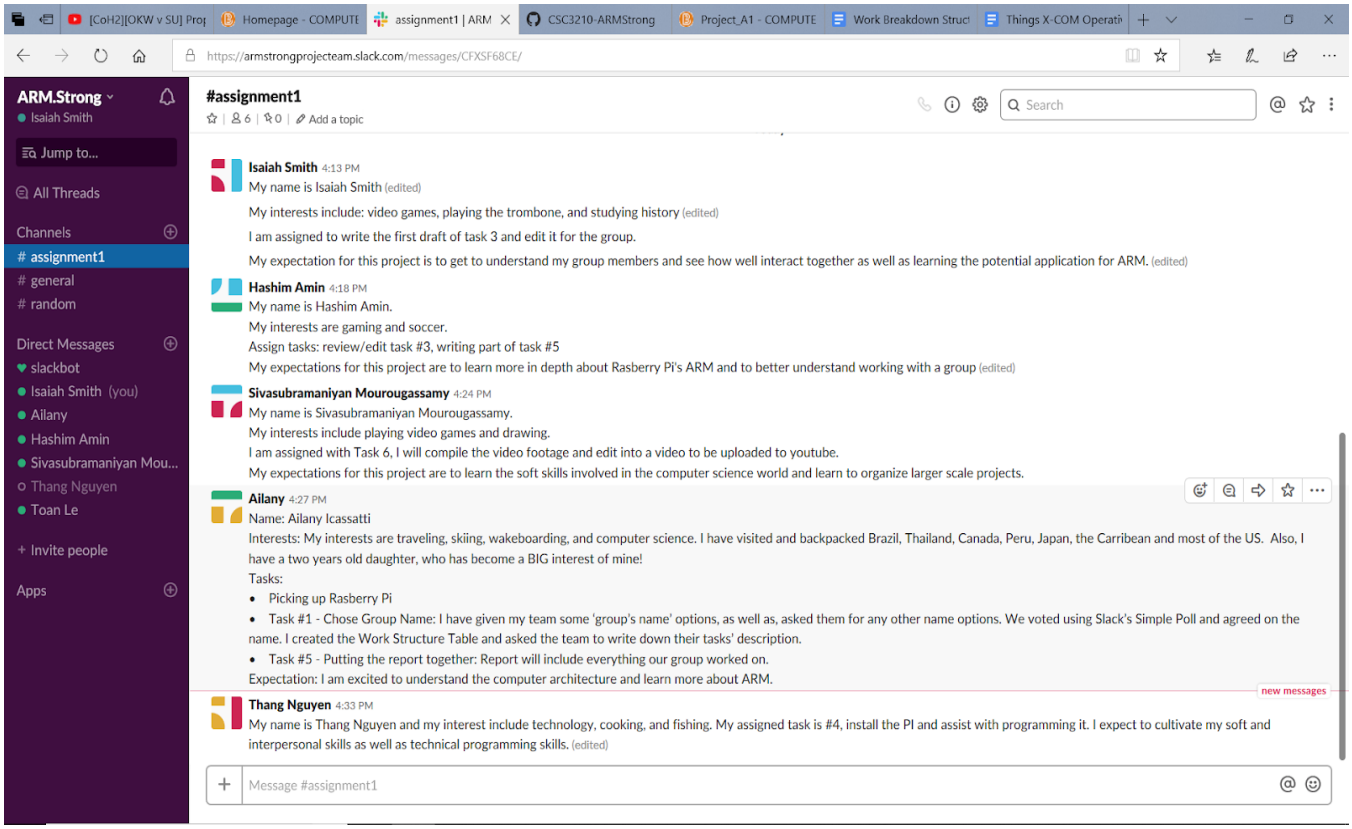
Ailany Icassatti
Hashim Amin
Isaiah Smith
Sivasubramaniyan Mourougassamy
Thang Nguyen
Toan Le

- **Github Project Tab:**



- **Slack - Teammate Introductions:**




[CoH2][OKW v SU] Proj
Homepage - COMPUTE
assignment1 | ARM
CSC3210-ARMStrong
Project_A1 - COMPUTE
Work Breakdown Struct
Things X-COM Operati
https://armstrongprojecteam.slack.com/messages/CFXSF68CE/
ARM.Strong
Isaiah Smith
Jump to...
All Threads
Channels
assignment1
general
random
Direct Messages
slackbot
Isaiah Smith (you)
Ailany
Hashim Amin
Sivasubramaniyan Mou...
Thang Nguyen
Toan Le
+ Invite people
Apps
#assignment1
6 | 0 | Add a topic
Search
Isaiah Smith 4:13 PM
My name is Isaiah Smith (edited)
My interests include: video games, playing the trombone, and studying history (edited)
I am assigned to write the first draft of task 3 and edit it for the group.
My expectation for this project is to get to understand my group members and see how well interact together as well as learning the potential application for ARM. (edited)
Hashim Amin 4:18 PM
My name is Hashim Amin.
My interests are gaming and soccer.
Assign tasks: review/edit task #3, writing part of task #5
My expectations for this project are to learn more in depth about Rasberry Pi's ARM and to better understand working with a group (edited)
Sivasubramaniyan Mourougassamy 4:24 PM
My name is Sivasubramaniyan Mourougassamy.
My interests include playing video games and drawing.
I am assigned with Task 6, I will compile the video footage and edit into a video to be uploaded to youtube.
My expectations for this project are to learn the soft skills involved in the computer science world and learn to organize larger scale projects.
Ailany 4:27 PM
Name: Ailany Icassatti
Interests: My interests are traveling, skiing, wakeboarding, and computer science. I have visited and backpacked Brazil, Thailand, Canada, Peru, Japan, the Carribean and most of the US. Also, I have a two years old daughter, who has become a BIG interest of mine!
Tasks:
• Picking up Rasberry Pi
• Task #1 - Chose Group Name: I have given my team some 'group's name' options, as well as, asked them for any other name options. We voted using Slack's Simple Poll and agreed on the name. I created the Work Structure Table and asked the team to write down their tasks' description.
• Task #5 - Putting the report together: Report will include everything our group worked on.
Expectation: I am excited to understand the computer architecture and learn more about ARM.
new messages
Thang Nguyen 4:33 PM
My name is Thang Nguyen and my interest include technology, cooking, and fishing. My assigned task is #4, install the PI and assist with programming it. I expect to cultivate my soft and interpersonal skills as well as technical programming skills. (edited)
Message #assignment1