

Developing Soft and Parallel Programming Skills Using Project-Based Learning,  
Spring 2019

Red Team

Juana Tavera, Hunter Pendley, Redghy Jean, Daniel Evans, Raktim Biswas

## I. Scheduling and Planning

Name	Email & Phone Number	Task(s)/Notes	Duration/ Log	Due Date
Juana Tavera	<a href="mailto:jtavera1@student.gsu.edu">jtavera1@student.gsu.edu</a> <a href="mailto:tvrjuana@gmail.com">tvrjuana@gmail.com</a> 4703999493	Download Raspberry Pi software for programming, contribute to teamwork basics document and revising report	Feb 5th, 12:30 pm-4:00 pm Feb 7th, 12:30 pm-1:00 pm	February 8 <sup>th</sup> 11:59 PM
Redghy Jean	<a href="mailto:rjean4@student.gsu.edu">rjean4@student.gsu.edu</a> 4046103472	Download Raspberry Pi software for programming, contribute to teamwork basics document and revising report	Feb 5th, 12:30 pm-4:00 pm Feb 7th, 12:30 pm-1:00 pm	February 8 <sup>th</sup> 11:59 PM
Hunter Pendley	<a href="mailto:hpendley2@student.gsu.edu">hpendley2@student.gsu.edu</a>	Contribute to teamwork basics document and revising report, download Raspberry Pi Software and run program using our Pi for group documentation	Feb 5th, 12:30 pm-4:00 pm Feb 7th, 12:30 pm-1:00 pm	February 8 <sup>th</sup> 11:59 PM
Daniel Evans	<a href="mailto:devans39@student.gsu.edu">devans39@student.gsu.edu</a> 4047347655	Create YouTube channel and upload group video, download Raspberry Pi software for programming, contribute to teamwork basics document and revising report	Feb 5th, 12:30 pm-4:00 pm Feb 7th, 12:30 pm-1:00 pm	February 8 <sup>th</sup> 11:59 PM
Raktim Biswas	<a href="mailto:rbiswas1@student.gsu.edu">rbiswas1@student.gsu.edu</a>	Create Slack and GitHub accounts for the group, contribute to teamwork basics document and revising report	Feb 5th, 12:30 pm-4:00 pm Feb 7th, 12:30 pm-1:00 pm	February 8 <sup>th</sup> 11:59 PM

## II. Teamwork Basics

### 1. What to do to get the task accomplished and team members' satisfaction high?

Establish roles and responsibilities of members based on their skills and communicate deadlines and tasks concisely to the group. Create rules and guidelines to select coordinators, resolve interpersonal conflicts, and concerns regarding group performance.

### 2. Work Norms

Workloads will be distributed fairly and evenly in accordance to skill level.

The facilitator will set deadlines and solely be responsible for deciding the consequence of missing said deadlines. Assignments will be reviewed as a team, openly, and honestly. Any differences in work ethic or quality should be taken up with the facilitator privately.

### **3. Facilitator Norms**

A facilitator/coordinator will be rotated randomly throughout the project so that everyone holds the position once. The facilitator is responsible for submitting assignments and distributing resources and communicating information to the group.

### **4. Communication Norms**

Communication will be held through emails, text group chats, and Slack. The coordinator is responsible for using these mediums to relay any important updates, information, documents, etc. for the project. All group members are expected to have a sense of urgency in all project related work, thus communicating like so.

### **5. Meeting Norms**

Meetings will typically be held after class since everyone is usually available at the same times on Tuesday and Thursday. If needed meetings will be held before school or throughout the week depending on everyone's schedule. Meetings are coordinated as a group since schedules can be tentative.

### **6. Consideration Norms**

If someone has a particular concern that they wish to address. Contact the facilitator for that project privately with said concern and discuss a solution. Meetings mostly taking place in the library and will abide by those rules. If outside the library, lenient rules unless affecting work quality.

### **7. As a team, select two cases out of the four mentioned in Handling Difficult Behavior**

#### **a. Too Quiet**

If a group member is too quiet, it is best if all the other group members take the time and effort to include this person, whether it be in just asking about their day or listening to their opinions and ideas that they may have on the assignment.

#### **b. Complains**

If a group member complains a great deal, the team as a whole should listen to what they have to say. If the complaint is reasonable, then the team should take the time and resolve it. However, if it is not, the team should point out that all those unnecessary complaints are affecting the overall work performance of the group.

### **8. When making decisions, if the team is having trouble reaching consensus, what should you do?**

When having trouble reaching a decision a team must choose one person in the group to write down all the ideas that the group has come up with. Out of all those ideas, each person will have to vote on which three ideas they like best. Then the group will choose three ideas that have gotten the most votes. Compare those ideas by similarities and differences and also by pros and cons. Whichever one has the most votes will be the idea the group goes with.

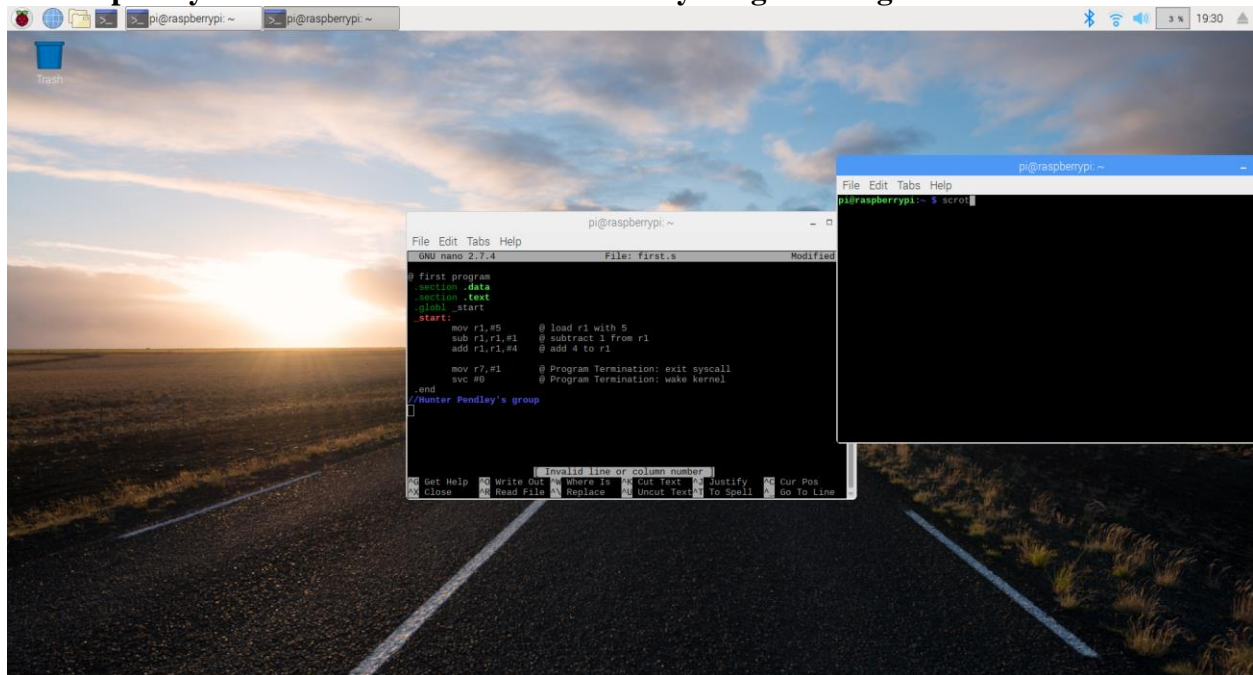
**9. What should you do if person may reach a decision more quickly than others and pressure people to move on before it is a good idea to do so?**

The group should first discuss and assess the progress of the project so far and determine if the decision is being made hastily or if it is necessary to move on due to time constraints. Everyone should analyze the pros and cons of both situations so the group is in consensus when a decision is made.

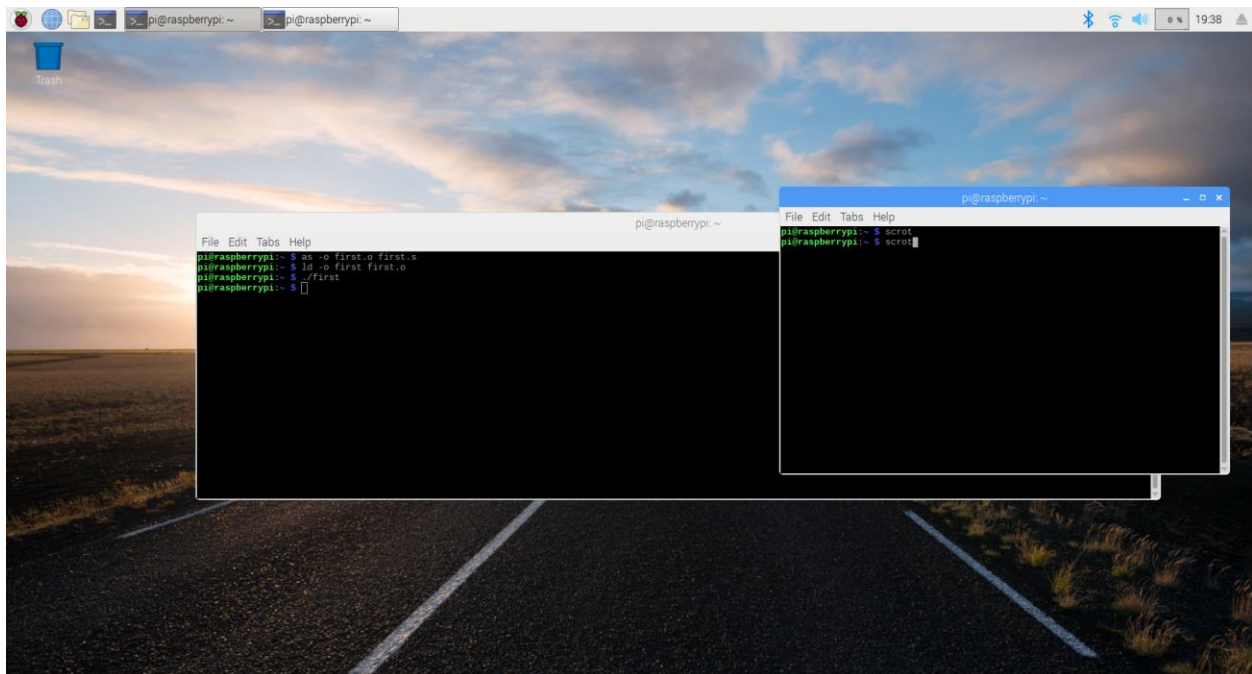
**10. What happens if most people on the team want to get an “A” on the assignment, but another person decides that a “B” will be acceptable?**

Discuss as a group the efforts and time that have gone into the assignment and determine if taking the lower grade is fair to the group's performance or if it due to individuals not doing their work. If needed, inform the instructor of the team member willing to take a lower grade since it is possible for individual group members to receive different grades based on their performance.

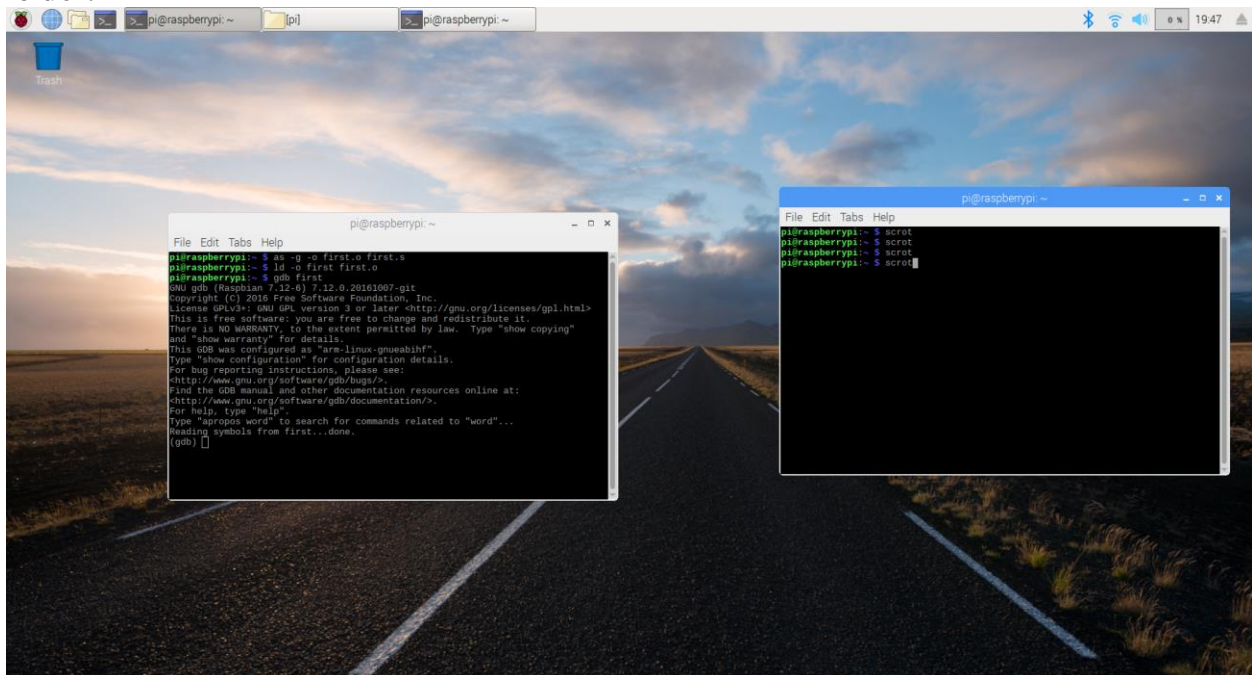
### III. Raspberry PI Installation and ARM Assembly Programming



creating the first file “first.s”

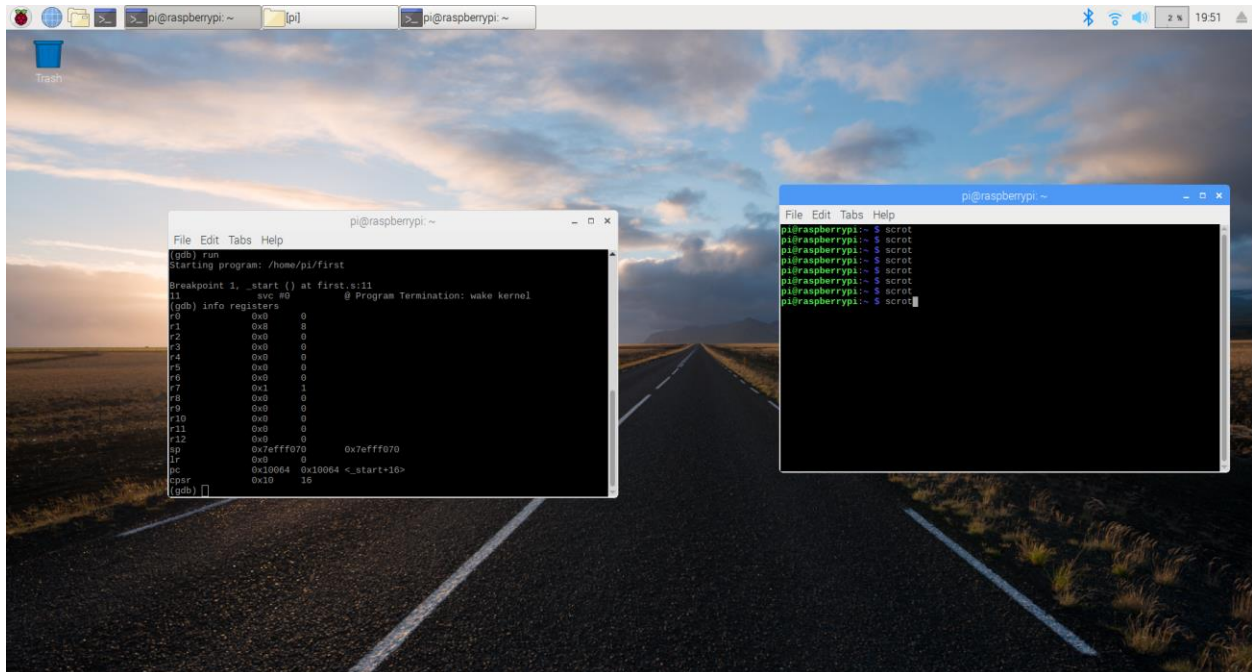


So here, we have assembled and linked our program, the “./first” should run it. However, there is no output. We believe this is because we are only moving values around in the registers and not actually printing anything. This also produced an executable file in our pi folder.



Now we are going to launch the GNU debugger. When we do this, we can set a breakpoint and then start the debug. When we do this, we can use the command “info registers” to look at the registers at that breakpoint.





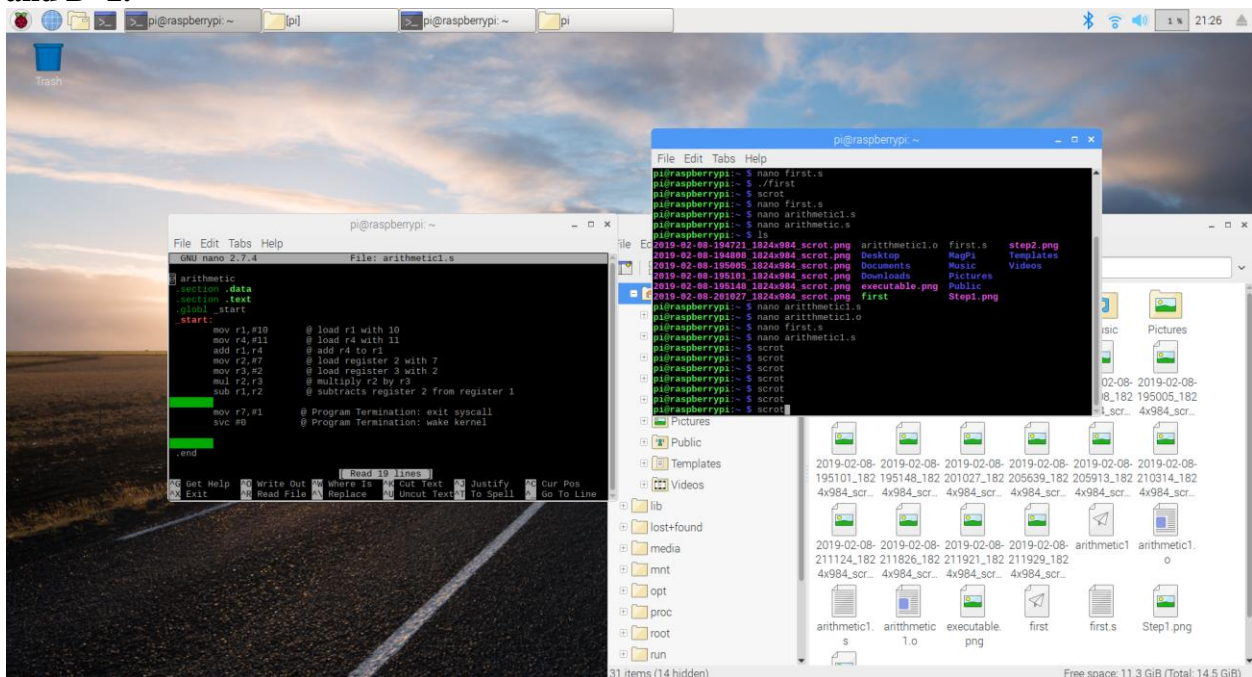
Here is the register info at the breakpoint on line 11. We can see here the values that are assigned to the registers.

## PART 2:

So first we start off with making the file “arithmetic1.s”

We used the command “nano arithmetic1.s” to create this new file.

Now it is time to write the code for the equation:  $A = (A + B) - (C * D)$  w/  $A=10$ ,  $B=11$ ,  $C=7$ , and  $D=2$ .



So the code on in the left terminal is what is in the file.

Also copy and pasted code here:

```

@ arithmetic
.section .data
.section .text
.globl _start
_start:
    mov r1,#10      @ load r1 with 10
    mov r4,#11      @ load r4 with 11
    add r1,r4        @ add r4 to r1
    mov r2,#7        @ load register 2 with 7
    mov r3,#2        @ load register 3 with 2
    mul r2,r3        @ multiply r2 by r3
    sub r1,r2        @ subtracts register 2 from register 1

    mov r7,#1        @ Program Termination: exit syscall
    svc #0           @ Program Termination: wake kernel

```

**.end**

**So to start, we added 10 to register 1 which acts as A.**

**Next we have added 11 to register 4 which acts as B.**

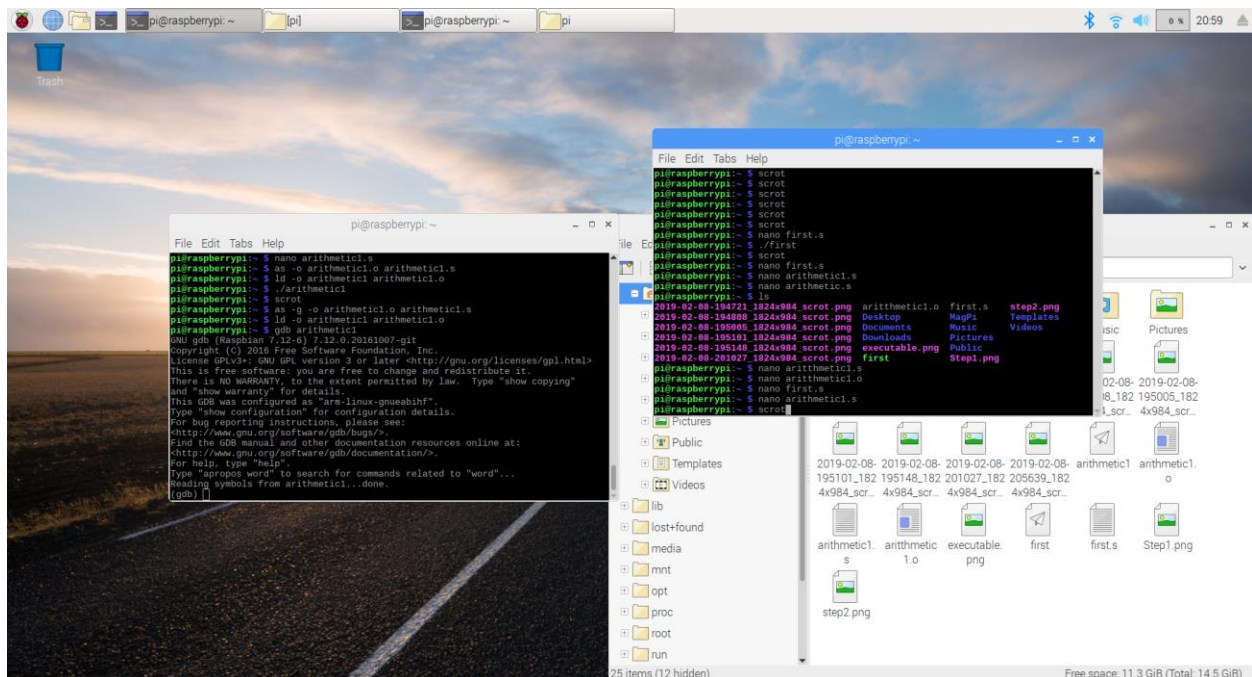
**Next we add r4 to r1 which should give us a value of 21 for register 1.**

**Now we assign 7 to register 2 which acts as C.**

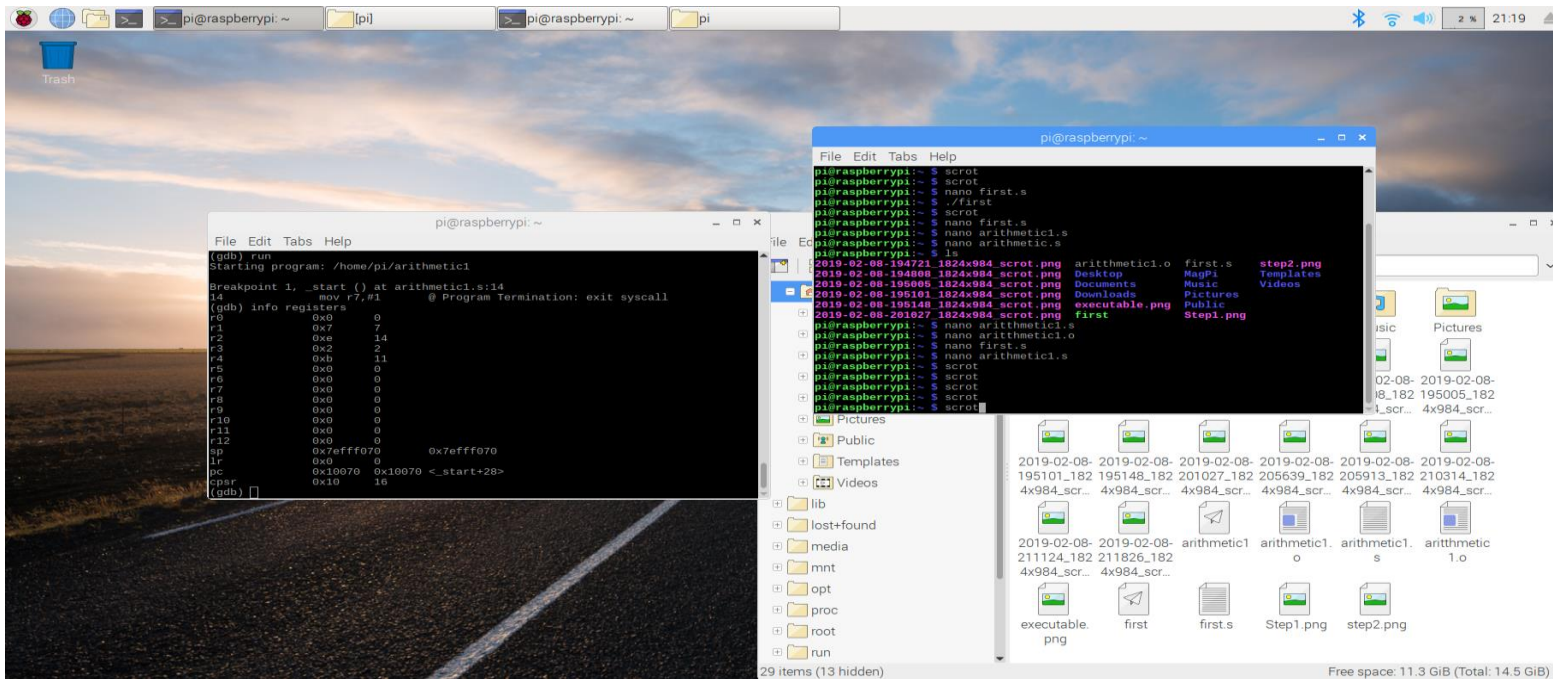
**Then we assign 2 to register 3 which acts as D.**

**Next we multiply r2 by r3 to get a value of 14 in register 2.**

**Finally we subtract r2 from r1 to get the final value of r1 or “A” which should be 7.**



So at the top of the right terminal we have assembled the program, then linked it, then tried to run it to not get an output. (As it's not printing anything.) We then start the debug process by adding the flag to the assemble command “-g”. Doing this preserves the symbols and line numbers of your code and the debugger can link the source code to the machine code line by line. There was also an executable file produced from these commands.



So what we are observing here is adding a breakpoint at line 14, running the program, and then bringing up our register info. This seemed to be a good way to verify whether or not your code was correct. As we can see here, register 1 has a decimal value of 7, which is correct per the formula. Register 2 has a value of 14 which is also correct per the formula. Register 2 originally had a value of 7 but was multiplied by register 3 which has a value of 2 and retains that value as no changes are made to it. Register 4 retains its original value as well at 11.

#### IV. Appendix

GitHub

<https://github.com/raktimbiswas319/Red-Team>



The first screenshot shows the 'Projects' tab of the 'Red-Team' repository. It features a Kanban board with three columns: 'To Do', 'In Progress', and 'Done'. The 'To Do' column has one card, 'CSC 3210 - Red Team', which is automated as 'To do'. The 'In Progress' column is empty, and the 'Done' column is also empty. A sidebar on the right shows a search filter 'is:open' and no results.

The second screenshot shows the 'Code' tab of the same repository, specifically the 'README.md' file. The file was updated by 'raktimbiswas319' 11 days ago. The content of the README is: 'Computer Organization & Programming Red-Team Juana Tavera Hunter Pendley Redghy Jean Daniel Evans Raktim Biswas'.

## Slack

<https://redteam-gwn6639.slack.com/>

Download the Slack Windows app for greater control over your notifications. Easier if you're in multiple workspaces, too!

## Red Team

Raktim Biswas

All Threads

Channels

- # comp-org
- # general
- # random

+ Add a channel

Direct Messages

- slackbot
- Raktim Biswas (you)
- Daniel evans
- Hunter Pendley
- Juana
- Redghy

+ Invite people

Apps

### #general

5 | 0 | Company-wide announcements and work-based matters

Tuesday, February 5th

**Hunter Pendley** 3:05 PM

My name is Hunter Pendley. I was assigned to help complete the teamwork outline. My expectation from this project was to get a general feel for everyone. We have already coordinated some general meeting times for the future and established all of our outlets of communication. I do not have a concentration in CS yet, but I am interested in security.

Wednesday, February 6th

**Juana** 2:24 PM

Post

**Untitled**  
Last edited 2 days ago

My name is Juana Tavera. I was assigned to download the Raspberry Pi software, to help complete the teamwork basics document, and to help revise the report. My expectations from this project are to get comfortable with working with people that have different levels of experience. I do not have a concentration in computer science

Today

**Redghy** 8:29 AM

My name is Redghy Jean. I was assigned to assist in downloading the Raspberry Pi software, contributing to answering the questions in the team basics

+ Message #general

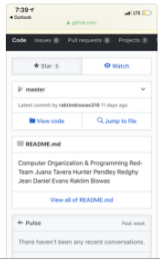
document, and also revising the report. My own expectations of the project were to gauge the work ethic and personalities of my team members for this first assignment. Everything has been a positive experience so far, as we are able to communicate effectively and get our work done in a timely manner. My current concentration in computer science is Networks and Parallel Distributing.

**Raktim Biswas** 10:56 AM

My name is Raktim Biswas. For this assignment I was the group's coordinator. I connected and invited everyone to platforms on Slack and GitHub. Through this project I expect to deepen my understanding of computer science through practical applications involving tools and technologies, like the Raspberry Pi. I hope the instruction of this course catches my attention and I look forward to working with my group members throughout the semester.

**Daniel evans** 9:23 PM

Image from iOS



+ Message #general

Download the Slack Windows app for greater control over your notifications. Easier if you're in multiple workspaces, too!

**Red Team** ▾  
Raktim Biswas

All Threads

Channels  
# comp-org  
# **general**  
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Direct Messages  
slackbot  
Raktim Biswas (you)  
Daniel evans  
Hunter Pendley  
Juana  
Redghy  
+ Invite people

Apps

**#general**  
5 | 0 | Company-wide announcements and work-based matters

Today

**Daniel evans** 9:31 PM  
My name is Daniel evans for this assignment I was assigned to create our YouTube page. I also downloaded all the Raspberry Pi software helped with figuring out how to use it. I also downloaded Etcher Software. I helped with scheduling the groups sessions. My preference in concentration is security; though I haven't quite chosen one yet. I'm looking forward to building with my team.

**Redghy** 9:32 PM  
<https://youtu.be/VWrAL3ZC5J4>  
YouTube | GSU Red Team  
Red Team Assignment #1 ▾

Message #general

11:33 PM  
2/8/2019

### YouTube Intro Video

<https://www.youtube.com/watch?reload=9&v=VWrAL3ZC5J4&feature=youtu.be>

[https://www.youtube.com/channel/UC2ve5LahQS\\_rpEDft3oVfXw](https://www.youtube.com/channel/UC2ve5LahQS_rpEDft3oVfXw)