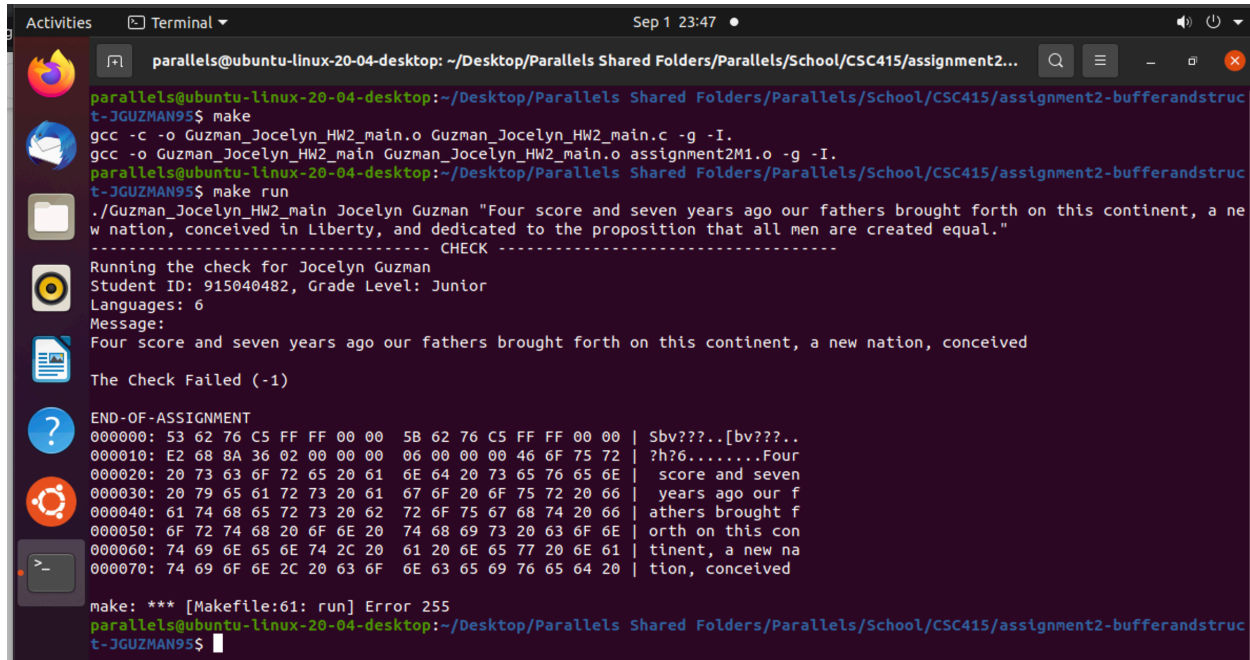


Name: Jocelyn Guzman
ID: 915040482
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9/1/2021

In this project I allocated the memory of a struct through the command line and by hard coding. I also created a buffer that reads a given input while not null.



```
parallel@ubuntu-linux-20-04-desktop: ~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$ make
gcc -c -o Guzman_Jocelyn_HW2_main.o Guzman_Jocelyn_HW2_main.c -g -I.
gcc -o Guzman_Jocelyn_HW2_main Guzman_Jocelyn_HW2_main.o assignment2M1.o -g -I.
parallel@ubuntu-linux-20-04-desktop:~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$ make run
./Guzman_Jocelyn_HW2_main Jocelyn Guzman "Four score and seven years ago our fathers brought forth on this continent, a ne
w nation, conceived in Liberty, and dedicated to the proposition that all men are created equal."
----- CHECK -----
Running the check for Jocelyn Guzman
Student ID: 915040482, Grade Level: Junior
Languages: 6
Message:
Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived
The Check Failed (-1)

END-OF-ASSIGNMENT
000000: 53 62 76 C5 FF FF 00 00 5B 62 76 C5 FF FF 00 00 | Sbv???..[bv???..
000010: E2 68 8A 36 02 00 00 00 06 00 00 00 46 6F 75 72 | ?h?6.....Four
000020: 20 73 63 6F 72 65 20 61 6E 64 20 73 65 76 65 6E |  score and seven
000030: 20 79 65 61 72 73 20 61 67 6F 20 6F 75 72 20 66 |  years ago our f
000040: 61 74 68 65 72 73 20 62 72 6F 75 67 68 74 20 66 |  athers brought f
000050: 6F 72 74 68 20 6F 6E 20 74 68 69 73 20 63 6F 6E |  orth on this con
000060: 74 69 6E 65 6E 74 2C 20 61 20 6E 65 77 20 6E 61 |  tinent, a new na
000070: 74 69 6F 6E 2C 20 63 6F 6E 63 65 69 76 65 64 20 |  tion, conceived

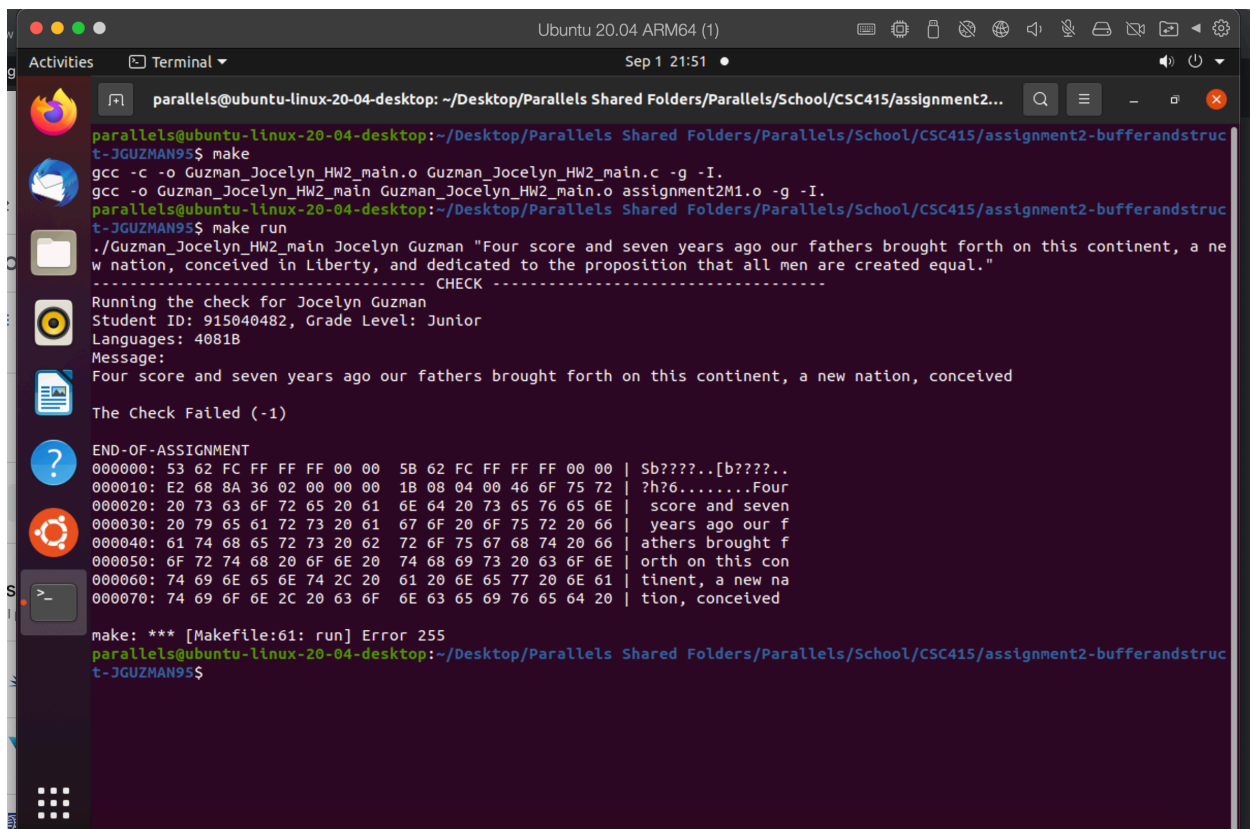
make: *** [Makefile:61: run] Error 255
parallel@ubuntu-linux-20-04-desktop:~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$
```

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ID: 915040482
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Some issues that I encountered were being able to get the checkIt function to successfully read. Hence error 255 on my screenshot. At first I thought it had to do with my buffer but then realized that it has nothing to do with that since only has to do with the personalInfo struct.

Another issue that encountered was my buffer was committing correctly when the max size was reached but then when I was in my final commit coming after there was a null string passed from the getNext() function I would still have contents from the past buffer. It took me a while to realize that I had to create a temp buffer and pass over the correct size string that it need to not have to handle left over contents.

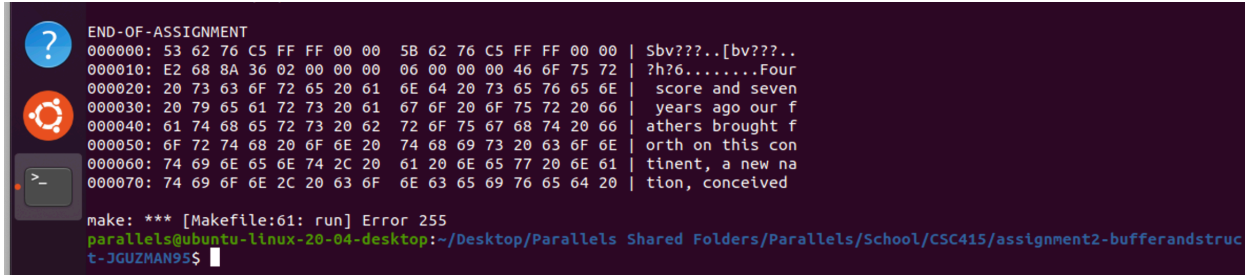
One other thing that made this difficult was converting the bitmap values into ints what I ended up doing was adding all the values and diving them by its self. Initially I had this, this was me using bitwise OR which added all the values together, which was then converted to Hex.



```
parallels@ubuntu-linux-20-04-desktop: ~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$ make
gcc -c -o Guzman_Jocelyn_HW2_main.o Guzman_Jocelyn_HW2_main.c -g -I.
gcc -o Guzman_Jocelyn_HW2_main Guzman_Jocelyn_HW2_main.o assignment2M1.o -g -I.
parallels@ubuntu-linux-20-04-desktop:~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$ make run
./Guzman_Jocelyn_HW2_main Jocelyn Guzman "Four score and seven years ago our fathers brought forth on this continent, a ne
w nation, conceived in Liberty, and dedicated to the proposition that all men are created equal."
----- CHECK -----
Running the check for Jocelyn Guzman
Student ID: 915040482, Grade Level: Junior
Languages: 4081B
Message:
Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived
The Check Failed (-1)
END-OF-ASSIGNMENT
000000: 53 62 FC FF FF FF 00 00 5B 62 FC FF FF FF 00 00 | Sb????..[b????..
000010: E2 68 8A 36 02 00 00 00 1B 08 04 00 46 6F 75 72 | ?h?6.....Four
000020: 20 73 63 6F 72 65 20 61 6E 64 20 73 65 76 65 6E | score and seven
000030: 20 79 65 61 72 73 20 61 67 6F 20 6F 75 72 20 66 | years ago our f
000040: 61 74 68 65 72 73 20 62 72 6F 75 67 68 74 20 66 | athers brought f
000050: 6F 72 74 68 20 6F 6E 20 74 68 69 73 20 63 6F 6E | orth on this con
000060: 74 69 6E 65 6E 74 2C 20 61 20 6E 65 77 20 6E 61 | tinent, a new na
000070: 74 69 6F 6E 2C 20 63 6F 6E 63 65 69 76 65 64 20 | tion, conceived
make: *** [Makefile:61: run] Error 255
parallels@ubuntu-linux-20-04-desktop:~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$
```

Name: Jocelyn Guzman
ID: 915040482
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Reading The Elements:



```
END-OF-ASSIGNMENT
000000: 53 62 76 C5 FF FF 00 00 5B 62 76 C5 FF FF 00 00 | Sbv???.[bv???.
000010: E2 68 8A 36 02 00 00 00 06 00 00 00 46 6F 75 72 | ?h?6.....Four
000020: 20 73 63 6F 72 65 20 61 6E 64 20 73 65 76 65 6E | score and seven
000030: 20 79 65 61 72 73 20 61 67 6F 20 6F 75 72 20 66 | years ago our f
000040: 61 74 68 65 72 73 20 62 72 6F 75 67 68 74 20 66 | athers brought f
000050: 6F 72 74 68 20 6F 6E 20 74 68 69 73 20 63 6F 6E | orth on this con
000060: 74 69 6E 65 6E 74 2C 20 61 20 6E 65 77 20 6E 61 | tinent, a new na
000070: 74 69 6F 6E 2C 20 63 6F 6E 63 65 69 76 65 64 20 | tion, conceived

make: *** [Makefile:61: run] Error 255
parallels@ubuntu-linux-20-04-desktop:~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$
```

First Line: Bytes 0 - 9 include info from the PersonalInfo struct, which contain first and last name.

Hexadecimal Values

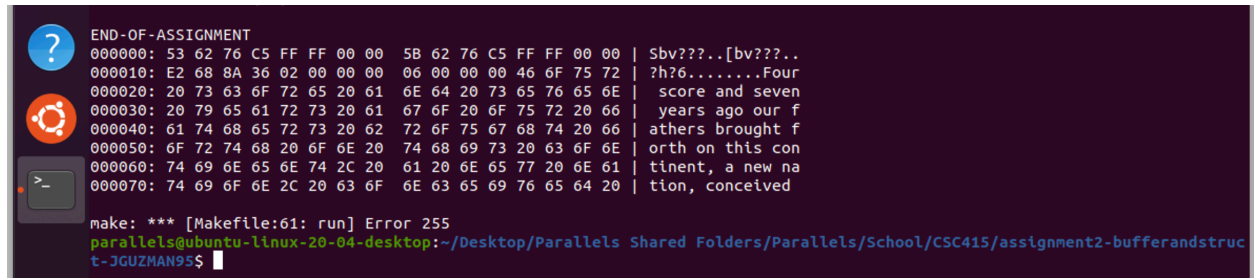
First Name: bytes 0 - 5 contain first name

53 62 76 C5 FF FF 00 00

Last Name: bytes 6 - 9 contain last name

5B 62 76 C5 FF FF 00 00

Name: Jocelyn Guzman
ID: 915040482
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```
END-OF-ASSIGNMENT
000000: 53 62 76 C5 FF FF 00 00 5B 62 76 C5 FF FF 00 00 | Sbv???[bv???..
000010: E2 68 8A 36 02 00 00 00 06 00 00 00 46 6F 75 72 | ?h?6.....Four
000020: 20 73 63 6F 72 65 20 61 6E 64 20 73 65 76 65 6E | score and seven
000030: 20 79 65 61 72 73 20 61 67 6F 20 6F 75 72 20 66 | years ago our f
000040: 61 74 68 65 72 73 20 62 72 6F 75 67 68 74 20 66 | athers brought f
000050: 6F 72 74 68 20 6F 6E 20 74 68 69 73 20 63 6F 6E | orth on this con
000060: 74 69 6E 65 6E 74 2C 20 61 20 6E 65 77 20 6E 61 | tinent, a new na
000070: 74 69 6F 6E 2C 20 63 6F 6E 63 65 69 76 65 64 20 | tion, conceived

make: *** [Makefile:61: run] Error 255
parallels@ubuntu-20-04-desktop:~/Desktop/Parallels Shared Folders/Parallels/School/CSC415/assignment2-bufferandstruc
t-JGUZMAN95$
```

Second Line: Bytes 10-19 include info about StudentID, gradeLevel and languages.

Hexadecimal Values

StudentID: bytes 10 - 12 contain StudentID

E2 68 8A 36 00

gradeLevel: bytes 13 - 15

02 00 00 00

languages: bytes 15 - 17 contain languages

06 00 00 00

Decimal Values

StudentID: if converted to decimal it is correct we are reading right to left

gradeLevel: 02 is the position of the gradeLevel junior so it would convert back correctly when reading right to left

languages: if converted to decimal it is correct we are reading right to left

which is what every language added up to equals.

Third Line: Bytes 18 onward contain the message that was passed to the struct from the command line.