CSc 3320: Systems Programming

Spring 2021

Midterm 2: Total points = 100

Assigned: 11th Apr 2021, Sunday 11:59 PM **Submission Deadline: 18th Apr 2021, Sunday, 11.59 PM (No extensions. If your submission is not received by this time then it will NOT be accepted.)**

Submission instructions:

1. Create a Google doc for your submission.
2. Start your responses from page 2 of the document and copy these instructions on page 1.
3. Fill in your name, campus ID and panther # in the fields provided. If this information is missing TWO POINTS WILL BE DEDUCTED.
4. Keep this page 1 intact. If this *submissions instructions* page is missing in your submission TWO POINTS WILL BE DEDUCTED.
5. Start your responses to each QUESTION on a new page.
6. If you are being asked to write code copy the code into a separate txt file and submit that as well. The code should be executable. E.g. if asked for a C script then provide myfile.c so that we can execute that script. In your answer to the specific question, provide the steps on how to execute your file (like a ReadMe).
7. If you are being asked to test code or run specific commands or scripts, provide the evidence of your outputs through a screenshot and/or screen video-recordings and copy the same into the document.
8. Upon completion, download a .PDF version of the google doc document and submit the same along with all the supplementary files (videos, pictures, scripts etc).

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Panther #: 001464896

Questions 1-3 are 20pts each. Question 4 is 40pts
All programs have to be well commented. Non commented programs will receive 0 points. Comments have to be easily comprehensible and concise.

1. sortNum.c

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ gcc -o sortnum sortNum.c
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./sortnum
How do you want to sort the array?
Enter (A) Ascending or (D) Descending:
a
The ascending sorted array result is:
-2342.000000
-109.559998
-5.000000
-2.000000
0.250000
3.145435
5.999000
6.000000
6.000000
10.000000
12123.000000
```

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ gcc -o sortnum sortNum.c
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./sortnum
How do you want to sort the array?
Enter (A) Ascending or (D) Descending:
A
The ascending sorted array result is:
-2342.000000
-109.559998
-5.000000
-2.000000
0.250000
3.145435
5.999000
6.000000
6.000000
10.000000
12123.000000
```

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./sortnum
How do you want to sort the array?
Enter (A) Ascending or (D) Descending:
D
The descending sorted array result is:
12123.000000
10.000000
6.000000
6.000000
5.999000
3.145435
0.250000
-2.000000
-5.000000
-109.559998
-2342.000000
```

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./sortnum
How do you want to sort the array?
Enter (A) Ascending or (D) Descending:
d
The descending sorted array result is:
12123.000000
10.000000
6.000000
6.000000
5.999000
3.145435
0.250000
-2.000000
-5.000000
-109.559998
-2342.000000
```

2. sortAlpha.c

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./alpha
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
a
The ascending sorted array result is:
Course
Deep
Internet
Learning
Programming
Robotics
Systems
Things
```

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./alpha
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
A
The ascending sorted array result is:
Course
Deep
Internet
Learning
Programming
Robotics
Systems
Things
```

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./alpha
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
D
The descending sorted array result is:
Things
Systems
Robotics
Programming
Learning
Internet
Deep
Course

[jrogers75@gsuad.gsu.edu@snowball midterm2]$
```

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./alpha
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
d
The descending sorted array result is:
Things
Systems
Robotics
Programming
Learning
Internet
Deep
Course
```

3. sortnumDMA1.c

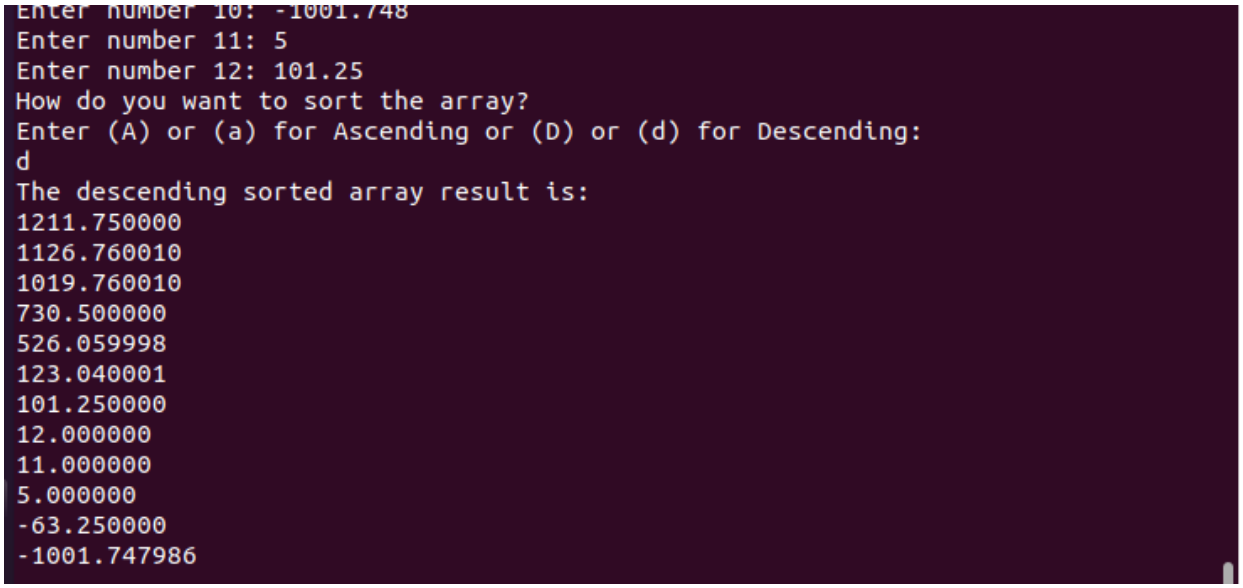
Trial 1:

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ gcc -o numdma1 sortnumDMA1.c
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./numdma1
Midterm2 - Problem 3
How many numbers will you enter?
20
Enter number 1: 6
Enter number 2: 3.021
Enter number 3: 652.03
Enter number 4: 125.02123
Enter number 5: 852.10
Enter number 6: 9.999
Enter number 7: 45.6523
Enter number 8: 8485
Enter number 9: -632.014
Enter number 10: -9.36
Enter number 11: -1.3
Enter number 12: 0.256
Enter number 13: 1.75
Enter number 14: 3.145435
Enter number 15: 5.999
Enter number 16: -6
Enter number 17: 1
Enter number 18: 23
Enter number 19: 88
Enter number 20: 100
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
a
```

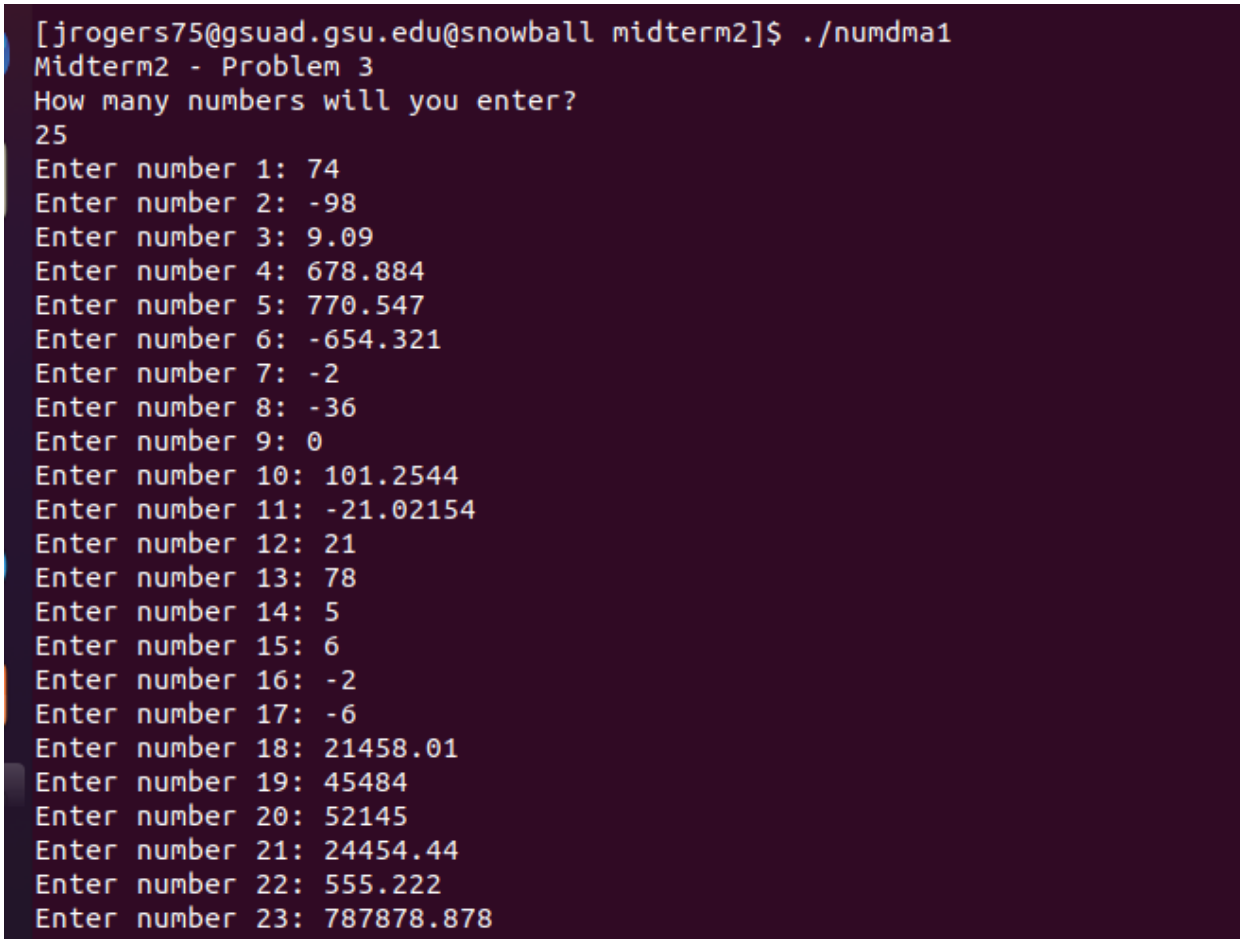
```
Enter number 19: 88
Enter number 20: 100
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
a
The ascending sorted array result is:
-632.013977
-9.360000
-6.000000
-1.300000
0.256000
1.000000
1.750000
3.021000
3.145435
5.999000
6.000000
9.999000
23.000000
45.652302
88.000000
100.000000
125.021233
652.030029
852.099976
8485.000000
```

Trial 2:

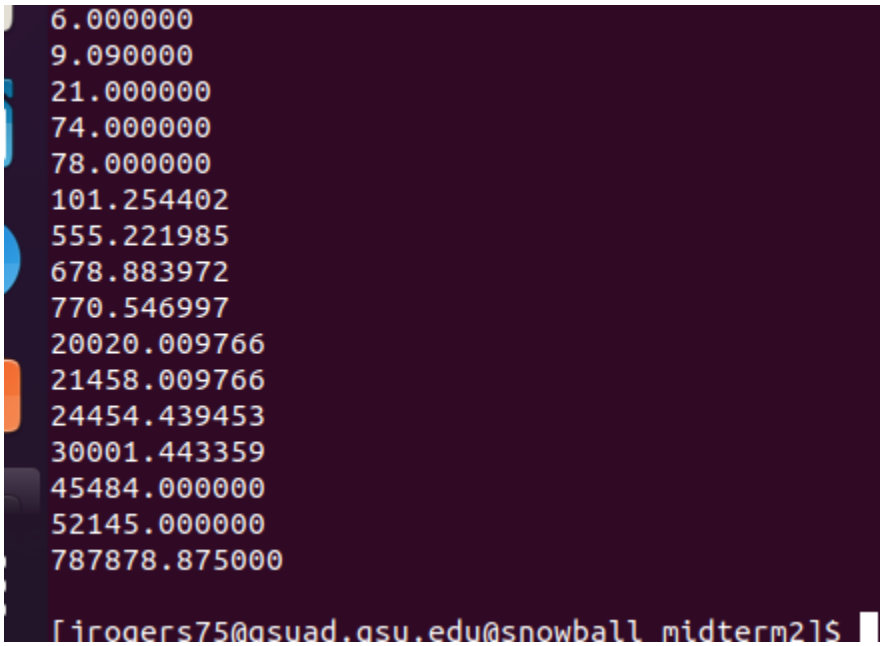
```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ gcc -o numdma1 sortnumDMA1.c
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./numdma1
Midterm2 - Problem 3
How many numbers will you enter?
12
Enter number 1: 12
Enter number 2: 11
Enter number 3: 123.04
Enter number 4: 1126.76
Enter number 5: 526.06
Enter number 6: 1211.75
Enter number 7: 730.50
Enter number 8: 1019.76
Enter number 9: -63.25
Enter number 10: -1001.748
Enter number 11: 5
Enter number 12: 101.25
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
d
The descending sorted array result is:
1211.750000
1126.760010
1019.760010
730.500000
526.059998
123.040001
101.250000
12.000000
```


Enter number 10: -1001.748
Enter number 11: 5
Enter number 12: 101.25
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
d
The descending sorted array result is:
1211.750000
1126.760010
1019.760010
730.500000
526.059998
123.040001
101.250000
12.000000
11.000000
5.000000
-63.250000
-1001.747986

Trial 3

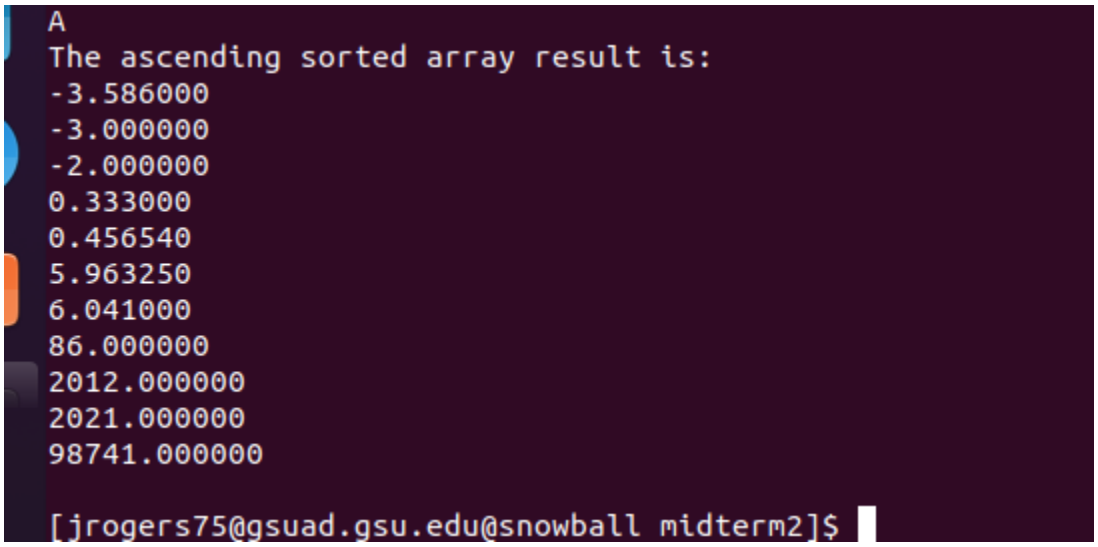

[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./numdma1
Midterm2 - Problem 3
How many numbers will you enter?
25
Enter number 1: 74
Enter number 2: -98
Enter number 3: 9.09
Enter number 4: 678.884
Enter number 5: 770.547
Enter number 6: -654.321
Enter number 7: -2
Enter number 8: -36
Enter number 9: 0
Enter number 10: 101.2544
Enter number 11: -21.02154
Enter number 12: 21
Enter number 13: 78
Enter number 14: 5
Enter number 15: 6
Enter number 16: -2
Enter number 17: -6
Enter number 18: 21458.01
Enter number 19: 45484
Enter number 20: 52145
Enter number 21: 24454.44
Enter number 22: 555.222
Enter number 23: 787878.878

```
Enter number 22: 555.222
Enter number 23: 787878.878
Enter number 24: 20020.01
Enter number 25: 30001.444
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
a
The ascending sorted array result is:
-654.320984
-98.000000
-36.000000
-21.021540
-6.000000
-2.000000
-2.000000
0.000000
5.000000
6.000000
9.090000
21.000000
74.000000
78.000000
101.254402
555.221985
678.883972
770.546997
20020.009766
21458.009766
24454.439453
```


6.000000
9.090000
21.000000
74.000000
78.000000
101.254402
555.221985
678.883972
770.546997
20020.009766
21458.009766
24454.439453
30001.443359
45484.000000
52145.000000
787878.875000
[jrogers75@gsuad.gsu.edu@snowball midterm2]$

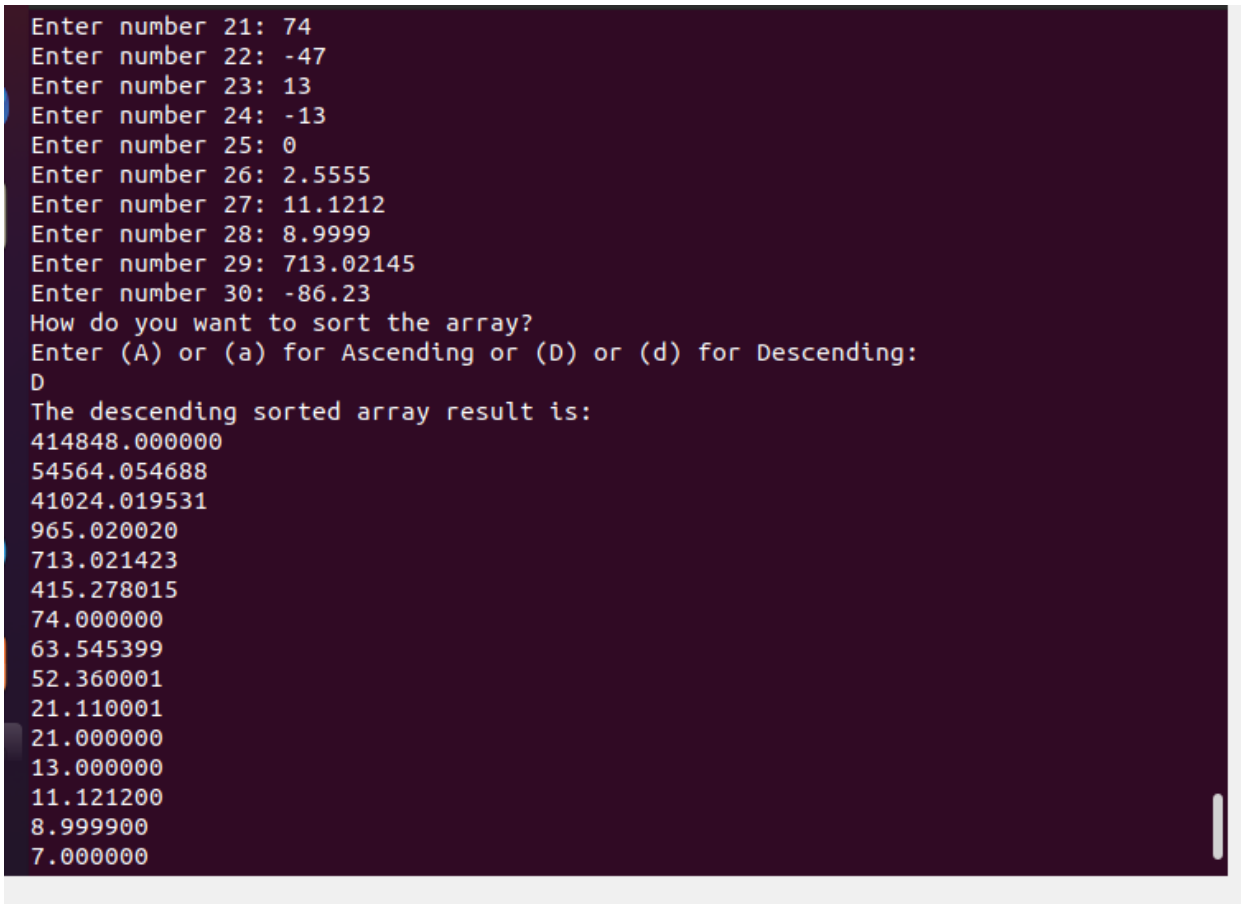
Trial 4

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ gcc -o numdma1 sortnumDMA1.c
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./numdma1
Midterm2 - Problem 3
How many numbers will you enter?
11
Enter number 1: -3
Enter number 2: -2
Enter number 3: 0.333
Enter number 4: 0.45654
Enter number 5: 5.96325
Enter number 6: 98741
Enter number 7: -3.586
Enter number 8: 6.041
Enter number 9: 86
Enter number 10: 2012
Enter number 11: 2021
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
A
The ascending sorted array result is:
-3.586000
-3.000000
-2.000000
0.333000
0.456540
5.963250
6.041000
86.000000
2012.000000
```


A
The ascending sorted array result is:
-3.586000
-3.000000
-2.000000
0.333000
0.456540
5.963250
6.041000
86.000000
2012.000000
2021.000000
98741.000000
[jrogers75@gsuad.gsu.edu@snowball midterm2]$

Trial 5

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ gcc -o numdma1 sortnumDMA1.c
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./numdma1
Midterm2 - Problem 3
How many numbers will you enter?
30
Enter number 1: 3
Enter number 2: 5
Enter number 3: 7
Enter number 4: -9
Enter number 5: -8
Enter number 6: -9.002
Enter number 7: 2.0454
Enter number 8: 54564.054
Enter number 9: -5454.0454
Enter number 10: -3652.084
Enter number 11: 414848
Enter number 12: 21
Enter number 13: 21.11
Enter number 14: 52.36
Enter number 15: 415.278
Enter number 16: 965.02
Enter number 17: -2.003
Enter number 18: -914.011
Enter number 19: 63.5454
Enter number 20: 41024.01848
Enter number 21: 74
Enter number 22: -47
Enter number 23: 13
Enter number 24: -13
```


Enter number 21: 74
Enter number 22: -47
Enter number 23: 13
Enter number 24: -13
Enter number 25: 0
Enter number 26: 2.5555
Enter number 27: 11.1212
Enter number 28: 8.9999
Enter number 29: 713.02145
Enter number 30: -86.23
How do you want to sort the array?
Enter (A) or (a) for Ascending or (D) or (d) for Descending:
D
The descending sorted array result is:
414848.000000
54564.054688
41024.019531
965.020020
713.021423
415.278015
74.000000
63.545399
52.360001
21.110001
21.000000
13.000000
11.121200
8.999900
7.000000

```
965.020020
713.021423
415.278015
74.000000
63.545399
52.360001
21.110001
21.000000
13.000000
11.121200
8.999900
7.000000
5.000000
3.000000
2.555500
2.045400
0.000000
-2.003000
-8.000000
-9.000000
-9.002000
-13.000000
-47.000000
-86.230003
-914.010986
-3652.083984
-5454.045410

[jrogers75@gsuad.gsu.edu@snowball midterm2]$
```

4. covidRegister.c

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ gcc -o covid covidRegister.c
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./covid
**********************************
**                              **
** Welcome to the Covid Vaccine **
** Registration Database        **
**                              **
**********************************


Ready to begin your registration?(Y/N)
y
Enter your first name: Jamie
Enter your last name: Lopez
How old are you as of today?
30
Segmentation fault (core dumped)
[jrogers75@gsuad.gsu.edu@snowball midterm2]$
```

```
[jrogers75@gsuad.gsu.edu@snowball midterm2]$ ./covid
**********************************
**                              **
** Welcome to the Covid Vaccine **
** Registration Database        **
**                              **
**********************************


Ready to begin your registration?(Y/N)
n
Good bye
[jrogers75@gsuad.gsu.edu@snowball midterm2]$
```