

OUTPUTS

*When the program starts, it reads data from the file named "input.txt".

- The first line contains a set of integers with a length of either 3, 6 or 9.
- The following three lines each contain a longer set of integers with equal length — either 20, 50 or 80.
- These numbers are stored in arrays for further processing.

*The user is prompted to enter an operation: "max" or "avg".

- Each entered operation is pushed onto a custom stack with a maximum capacity of 3.
- This stack keeps track of the most recent operations selected by the user.

*After selecting the operation, the user provides a mode: "rgb", "bgr", or "gray".

- Based on the selected mode, the program slides chunks over the three data lines.
- The chosen operation ("max" or "avg") is applied to each chunk and a new result is calculated.
- The "max" operation returns the highest value of multiplied elements between the chunk and the data line.
- The "avg" operation returns the average value of the same multiplication.

*Once all operations are completed, the results are written to the file "output.txt".

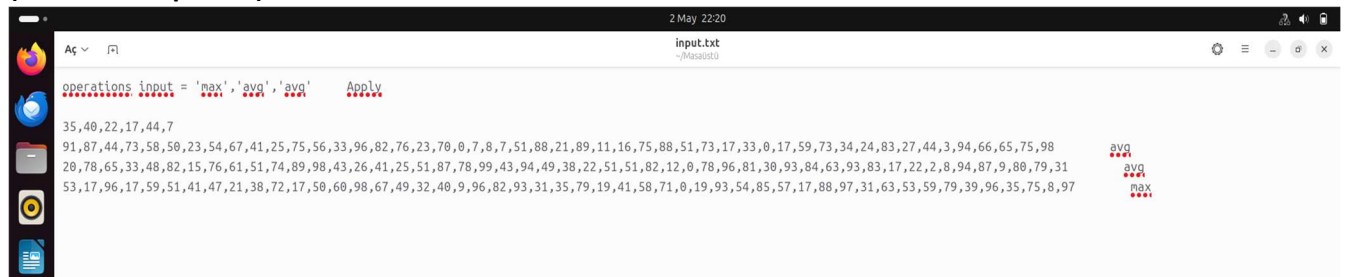
- If the mode is rgb, the output is written in the format: RGB: -> [second_line_results, third_line_results, fourth_line_results], [second_line_results, third_line_results, fourth_line_results]...
- If the mode is bgr, the format becomes: BGR: -> [fourth_line_results, third_line_results, second_line_results], [fourth_line_results, third_line_results, second_line_results]...
- If the mode is gray, each result line is written separately in a vertical layout:
GRAY: -> [second_line_results]
 [third_line_results]
 [fourth_line_results]

*You are required to implement specific functions for calculation and output:

- max_operation() for computing maximums.
- avg_operation() for computing averages.
- print_output_file() for formatting and saving the final results.

EXAMPLE 1

(I have this input.txt)



```
2 May 22:20
input.txt
~/Masaniti

operations input = 'max','avg','avg' Apply
.....
35,40,22,17,44,7
91,87,44,73,58,50,23,54,67,41,25,75,56,33,96,82,76,23,70,0,7,8,7,51,88,21,89,11,16,75,88,51,73,17,33,0,17,59,73,34,24,83,27,44,3,94,66,65,75,98
20,78,65,33,48,82,15,76,61,51,74,89,98,43,26,41,25,51,87,78,99,43,94,49,38,22,51,51,82,12,0,78,96,81,30,93,84,63,93,83,17,22,2,8,94,87,9,80,79,31
53,17,96,17,59,51,41,47,21,38,72,17,50,60,98,67,49,32,40,9,96,82,93,31,35,79,19,41,58,71,0,19,93,54,85,57,17,88,97,31,63,53,59,79,39,96,35,75,8,97

avg
avg
max
```

```
2 May 22:21
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox: ~/Masaüstü
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü$ gcc --ansi 230104004044.c -o 230104004044
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü$ ./230104004044
Enter 'max' or 'avg' for line 4: max
Enter 'max' or 'avg' for line 3: avg
Enter 'max' or 'avg' for line 2: avg
You choose one of 'rgb', 'bgr' or 'gray': gray
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü$
```

```
2 May 22:24
output.txt
input.txt
output.txt
GRAY: ->
[2196, 1733, 1581, 1847, 1639, 1279, 1476, 1859, 1571, 1641, 2127, 2248, 1822, 1925, 1963, 1308, 951, 720, 805, 983, 1032, 1202, 1479, 1387, 1565, 1864, 1806, 1495, 1695, 1735, 1411, 1039, 1129, 1225, 1155, 925, 1516, 1789, 1430, 1079, 1487, 1908, 1591, 1722]
[1798, 1834, 1560, 1768, 1841, 1835, 2024, 2471, 2188, 1861, 1936, 1850, 1550, 1526, 1754, 1988, 2002, 2307, 2487, 2120, 1754, 1623, 1748, 1616, 1371, 975, 1427, 2020, 1955, 1397, 1864, 2649, 2457, 2256, 2447, 2304, 1739, 1513, 1281, 1290, 1472, 1127, 1188, 2065]
[2596, 3840, 3360, 2360, 2065, 2520, 3168, 1750, 2200, 3430, 4312, 2948, 2400, 3920, 3430, 3360, 4224, 3608, 4092, 3840, 3360, 3720, 3255, 2030, 3160, 3124, 1640, 3255, 4092, 2975, 3740, 3720, 3255, 3872, 4268, 2205, 3520, 3880, 3395, 3476, 3360, 4224, 3160, 3300]
```

```
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü$ ./230104004044
Enter 'max' or 'avg' for line 4: max
Enter 'max' or 'avg' for line 3: avg
Enter 'max' or 'avg' for line 2: avg
You choose one of 'rgb', 'bgr' or 'gray': rgb
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü$
```

```
2 May 22:24
output.txt
input.txt
output.txt
RGB: -> [2196, 1798, 2596],[1733, 1834, 3840],[1581, 1560, 3360],[1847, 1768, 2360],[1639, 1841, 2065],[1279, 1835, 2520],[1476, 2024, 3168],[1859, 2471, 1750],[1571, 2188, 2200],[1641, 1861, 3430],[2127, 1936, 4312],[2248, 1850, 2948],[1822, 1550, 2400],[1925, 1526, 3920],[1963, 1754, 3430],[1308, 1988, 3360],[951, 2002, 4224],[720, 2307, 3608],[805, 2487, 4092],[983, 2120, 3840],[1032, 1754, 3360],[1202, 1623, 3720],[1479, 1748, 3255],[1387, 1616, 2030],[1565, 1371, 3160],[1864, 975, 3124],[1806, 1427, 1640],[1495, 2020, 3255],[1695, 1955, 4092],[1735, 1397, 2975],[1411, 1864, 3740],[1039, 2649, 3720],[1129, 2457, 3255],[1225, 2256, 3872],[1155, 2447, 4268],[925, 2304, 2205],[1516, 1739, 3520],[1789, 1513, 3880],[1430, 1281, 3395],[1079, 1290, 3476],[1487, 1472, 3360],[1908, 1127, 4224],[1591, 1188, 3160],[1722, 2065, 3300]
```

```
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü$ ./230104004044
Enter 'max' or 'avg' for line 4: max
Enter 'max' or 'avg' for line 3: avg
Enter 'max' or 'avg' for line 2: avg
You choose one of 'rgb', 'bgr' or 'gray': bgr
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü$
```

```
2 May 22:25
output.txt
input.txt
output.txt
BGR: -> [2596, 1798, 2196],[3840, 1834, 1733],[3360, 1560, 1581],[2360, 1768, 1847],[2065, 1841, 1639],[2520, 1835, 1279],[3168, 2024, 1476],[1750, 2471, 1859],[2200, 2188, 1571],[3430, 1861, 1641],[4312, 1936, 2127],[2948, 1850, 2248],[2400, 1550, 1822],[3920, 1526, 1925],[3430, 1754, 1963],[3360, 1988, 1308],[4224, 2002, 951],[3608, 2307, 720],[4092, 2487, 805],[3840, 2120, 983],[3360, 1754, 1032],[3720, 1623, 1202],[3255, 1748, 1479],[2030, 1616, 1387],[3160, 1371, 1565],[3124, 975, 1864],[1640, 1427, 1806],[3255, 2020, 1495],[4092, 1955, 1695],[2975, 1397, 1735],[3740, 1864, 1411],[3720, 2649, 1039],[3255, 2457, 1129],[3872, 2256, 1225],[4268, 2447, 1155],[2205, 2304, 925],[3520, 1739, 1516],[3880, 1513, 1789],[3395, 1281, 1430],[3476, 1290, 1079],[3360, 1472, 1487],[4224, 1127, 1908],[3160, 1188, 1591],[3300, 2065, 1722]
```

EXAMPLE 2

(I have this input.txt)

```
2 May 22:46
input.txt
~Masaüstü

operations input = 'max','max','avg' Apply
.....
4,81,86,73,59,89,53,10,46
85,74,84,36,65,60,38,53,75,83,96,90,31,59,83,96,38,79,50,67,56,73,98,50,26,28,87,37,92,78,36,2,4,63,72,32,67,73,50,13,76,78,50,82,90,71,82,64,29,94
20,69,24,50,92,27,25,37,52,61,85,87,30,44,54,98,30,91,82,89,65,21,30,36,13,46,99,84,9,37,3,31,44,6,96,19,41,56,40,11,38,88,16,34,29,59,27,95,6,52
45,24,30,25,49,47,44,63,11,70,50,16,17,46,50,21,64,58,97,13,65,29,27,21,42,69,69,59,11,82,4,64,5,90,99,96,6,82,22,89,88,61,59,93,86,11,49,35,1,81
avg
max
max
```

```
2 May 22:46
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$ gcc -ansi 230104004044.c -o 230104004044
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$ ./230104004044
Enter 'max' or 'avg' for line 4: max
Enter 'max' or 'avg' for line 3: max
Enter 'max' or 'avg' for line 2: avg
You choose one of 'rgb', 'bgr' or 'gray': rgb
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$
```

```
2 May 22:47
input.txt
output.txt
~Masaüstü

RGB: -> [6642, 22100, 4675],[6744, 25925, 29750],[7309, 36125, 21250],[7417, 36975, 6800],[4803, 12750, 7225],[6327, 18700, 19550],[7570, 22950, 21250],[8139, 41650, 8925],[5604, 12750, 27200],[7558, 38675, 24650],[5793, 34850, 41225],[6245, 37825, 5696],[6160, 27625, 27625],[6915, 8925, 12325],[7933, 12750, 11475],[5438, 15300, 8925],[4698, 7371, 17850],[4672, 19550, 29325],[7181, 42075, 29325],[4619, 35700, 25075],[7369, 5247, 6141],[6650, 15725, 34850],[4233, 7476, 5251],[2975, 13175, 27200],[3172, 18700, 7298],[5753, 8019, 38250],[5632, 40800, 42075],[3896, 8075, 40800],[5375, 17425, 8010],[5245, 23800, 34850],[4208, 17000, 9350],[3194, 7008, 37825],[6575, 16150, 37400],[6342, 37400, 25925],[4904, 6800, 25075],[6944, 14450, 39525],[7175, 12325, 36550],[6164, 25075, 7654],[7117, 11475, 20825],[6799, 40375, 14875],[5094, 7128, 6789]
```

```
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$ ./230104004044
Enter 'max' or 'avg' for line 4: max
Enter 'max' or 'avg' for line 3: max
Enter 'max' or 'avg' for line 2: avg
You choose one of 'rgb', 'bgr' or 'gray': bgr
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$
```

```
2 May 22:47
input.txt
output.txt
~Masaüstü

BGR: -> [4675, 22100, 6642],[29750, 25925, 6744],[21250, 36125, 7309],[6800, 36975, 7417],[7225, 12750, 4803],[19550, 18700, 6327],[21250, 22950, 7570],[8925, 41650, 8139],[27200, 12750, 5604],[24650, 38675, 7558],[41225, 34850, 5793],[5696, 37825, 6245],[27625, 27625, 6160],[12325, 8925, 6915],[11475, 12750, 7933],[8925, 15300, 5438],[17850, 7371, 4698],[29325, 19550, 4672],[29325, 42075, 7181],[25075, 35700, 4619],[6141, 5247, 7369],[34850, 15725, 6650],[5251, 7476, 4233],[27200, 13175, 2975],[7298, 18700, 3172],[38250, 8019, 5753],[42075, 40800, 5632],[40800, 8075, 3896],[8010, 17425, 5375],[34850, 23800, 5245],[9350, 17000, 4208],[37825, 7008, 3194],[37400, 16150, 6575],[25925, 37400, 6342],[25075, 6800, 4904],[39525, 14450, 6944],[36550, 12325, 7175],[7654, 25075, 6164],[20825, 11475, 7117],[14875, 40375, 6799],[6789, 7128, 5094]
```

```
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$ ./230104004044
Enter 'max' or 'avg' for line 4: max
Enter 'max' or 'avg' for line 3: max
Enter 'max' or 'avg' for line 2: avg
You choose one of 'rgb', 'bgr' or 'gray': gray
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$
```



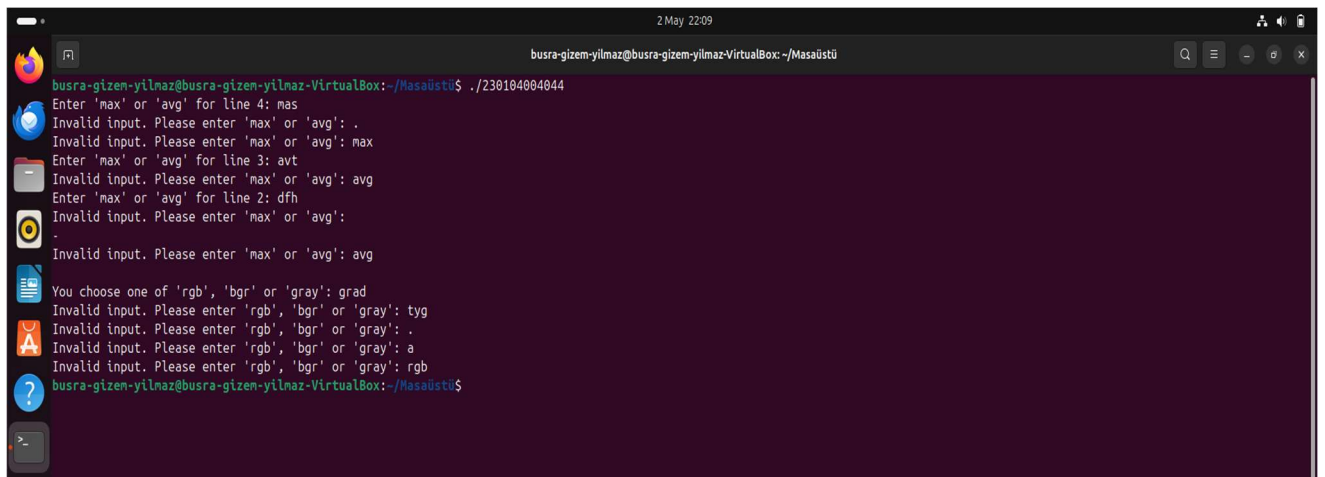
```
GRAY: ->
[6642,6744,7309,7417,4803,6327,7570,8139,5604,7558,5793,6245,6160,6915,7933,5438,4698,4672,7181,4619,7369,6650,4233,2975,3172,5753,5632,3896,5375,5245,4208,3194,6575,6342,4904,6944,7
175,6164,7117,6799,5094]
[22100,25925,36125,36975,12750,18700,22950,41650,12750,38675,34850,37825,27625,8925,12750,15300,7371,19550,42075,35700,5247,15725,7476,13175,18700,8019,40800,8075,17425,23800,17000,7
008,16150,37400,6800,14450,12325,25075,11475,40375,7128]
[4675,29750,21250,6800,7225,19550,21250,8925,27200,24650,41225,5696,27625,12325,11475,8925,17850,29325,29325,25075,6141,34850,5251,27200,7298,38250,42075,40800,8010,34850,9350,37825,
37400,25925,25075,39525,36550,7654,20825,14875,6789]
```

SOME ERRORS

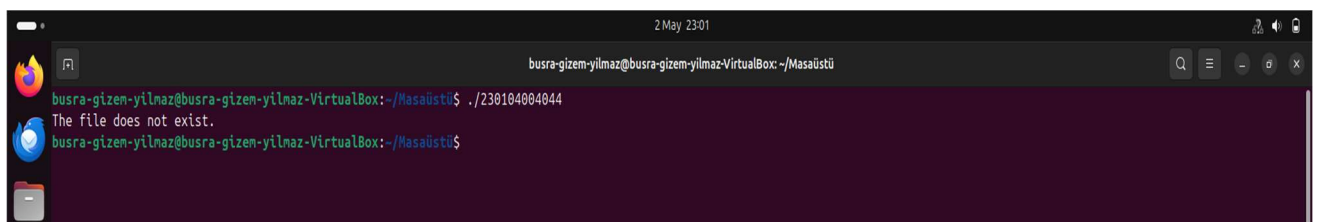
***If the user enters a value other than "max" or "avg", the program will display an "Invalid input. Please enter 'max' or 'avg':" message and continue asking until a valid input is provided.**

***If the user enters a value other than "rgb", "bgr", or "gray", the program will display an "Invalid input. Please enter 'rgb', 'bgr', or 'gray':" message and keep prompting the user until a correct input is given.**

***If the file "input.txt" does not exist in the working directory, the program will display the message "The file does not exist" and terminate execution.**



```
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$ ./230104004044
Enter 'max' or 'avg' for line 4: mas
Invalid input. Please enter 'max' or 'avg': .
Invalid input. Please enter 'max' or 'avg': max
Enter 'max' or 'avg' for line 3: avt
Invalid input. Please enter 'max' or 'avg': avg
Enter 'max' or 'avg' for line 2: dfh
Invalid input. Please enter 'max' or 'avg': -
Invalid input. Please enter 'max' or 'avg': avg
You choose one of 'rgb', 'bgr' or 'gray': grad
Invalid input. Please enter 'rgb', 'bgr' or 'gray': tyg
Invalid input. Please enter 'rgb', 'bgr' or 'gray': .
Invalid input. Please enter 'rgb', 'bgr' or 'gray': a
Invalid input. Please enter 'rgb', 'bgr' or 'gray': rgb
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$
```



```
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$ ./230104004044
The file does not exist.
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü$
```