SE 5930
Machine Problem 2 (MP2)
One Hundred Numbers

20 points

We have just learned how to use **lists**, **for-loops**, and **if-statements**. Write a Python script that (1) fills a list with 100 randomly generated numbers between 1 and 1000, (2) prints the contents of the list in a 10 x 10 block, (3) prints out the highest number, the lowest number, and the average of the 100 numbers. Finally, your program must perform 3 iterations of this task.

The output of your program must look exactly like the following (of course, since your numbers are randomly generated, the numbers will be different every time)…

```
  150  954  507  819  365  312  941  359  454  200
  229  940  125  608   48  375  566   72  242  187
  728  377  670  430  911   27  537  397  395  244
  885  855  216  581  164  884  874   35  926   44
  101  714  642   98  958  828  575  335  674  380
  688  441  508  607   20  875  726  133  771  398
  561  500  445  416  283  911  352  386  594  965
  220  192   41  770  735   67  796   34  274  640
  170  540  664  142  195  519  456  662  732  713
  793  977   43  874  273  843  551  948  758  941

High: 977, Low: 20, Average: 500.81


  382   26  591  328  695  875  452  538  861  479
  676  396  558  818  455  360  704  683  264  780
  999  464  798  706  174  914  974  578  861  835
  272  162  606  695  850  196  179  864  871  289
  240  964  263  283  568  158  533  751  630  518
  802  432  782   18  795  796  608  426  590  364
  822  290  626  229  490   43  973  931  883  307
   54  739  800  608   73  213  223  149  607  509
  170  933  159  506  626    8  780  572  258  832
  569  149  659  974  958  701  905  396  382  103

High: 999, Low: 8, Average: 539.38


  816  857  967  646   57  257  853  243  585  648
   62  312  243  285  281  151  250  897   71  998
  902  287  756  652  693  235  275  771  626   55
  890    9  188  800  705  343  405  768  602  336
  477  360  637  117  980  756  139  593  153  844
  564  520  225  800  790  648  302  717  284  150
  541   53  618  128   50  938  532  157  815   81
  403  424   66  339  201   44  925  344  267   70
  782  160   89  706  190  403  889  286  495  776
  891  780  968  744  768  422  591  121  696   91

High: 998, Low: 9, Average: 476.77
```

Some things to keep in mind while you are constructing your solution…

- Your program will need to use **nested for-loops**, since you will need a for-loop to fill the list, a for-loop to print the list, and an outer for-loop to execute this task 3 times.
- You do not necessarily need to use a **list** to get this task completed. However, it is a requirement to 1st fill the **list** with random numbers, and then print the numbers out…that will require a **list**.
- In order to generate `random` numbers, you must import the `random` module, and then use `randint(1, 1000)` to generate a random integer between 1 and 1000, including 1 and 1000. The 1st line in your code, after your documentation, should be…

```
from random import *
```

- I initialized my **list** using `[]`, and then used `append()` to put each newly generated number onto the end of my **list**.
- In order to print the numbers in columns, aligned to the right, we will use formatted strings (or **f-strings**) in our print statement.

```
print(f'{num:>5}', end = '')
```

  will print the `int` value `num`, right-justified, in a field of 5. You may also want to use an **f-string** for the last line.

For full credit…

- Hand in a hard copy of your script and the output that your script generates.
- Hand in your solution on-time.
- Document your solution appropriately.
- Write clear, well-organized code.
- Use variable names that make sense for the data that they contain.
- Your output that your script generates must be exactly like the desired output (of course the numbers will be different each time).