Lab 1

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Question 1 code:

```
%Question 1
vec = 2:3:100;
p = randperm(length(vec));
output = zeros(1,length(vec));
for i = 1:length(vec)
    output(i) = vec(p(i));
end
```

Output example

```
Q1
  Columns 1 through 19

    20     2     5    65    62    35    80    86    53    14    74    26    23    41    38    68    89    77    44

  Columns 20 through 33

    59    56    11    92    47    83    50    29    32     8    95    17    98    71
```

Question 2 code and output:

```
A=[1 3 5; 2 4 6;7 8 9];
B = A(2,:);
C = A(:,2);
D = A(:);
E = D([end:-1:5]);
```

A:

```
1     3     5
2     4     6
7     8     9
```

B:

```
2     4     6
```

C:

```
3
4
8
```

D:

```
1
2
7
3
4
8
5
6
9
```

E:

```
9
6
5
8
4
```

A is just a matrix containing the values inputed
B takes on row 2
C takes on column 2
D takes in all values and puts it in a column
E starts at the last index, to the 5th index, -1 step and Put everything into a column

Q3
M1 takes the top right pixel of a 4x4 and uses that in the new picture, M2 takes in the average of the 4x4 and takes that in the new picture. M2 looks a lot better since it takes in the average

Q4
Bilinear: looks very pixilated, not that good
NN: blurry picture, looks the 2nd best, takes in 2x2 neighbouring
bicubic: looks the best, takes in 4x4 neighbouring

Q5
JPEG size: 148KB
PNG size: 1.87MB
BMP size 4.06MB
Compression ratios:
BMP/JPEG = 27.43
BMP/PNG = 2.17