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```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% ENGR 13300 Fall 2021
%
% Problem Description: This is a demonstration of matrix opperations in
% matlab
%
% Assignment Information
%   Assignment:     Ind HW9 - MA1
%   Author:         Maximilian Drach, mdrach@purdue.edu
%   Team ID:        LC5-07
%
%   Contributor:    Name, login@purdue [repeat for each]
%   My contributor(s) helped me:
%     [ ] understand the assignment expectations without
%         telling me how they will approach it.
%     [ ] understand different ways to think about a solution
%         without helping me plan my solution.
%     [ ] think through the meaning of a specific error or
%         bug present in my code without looking at my code.
%   Note that if you helped somebody else with their code, you
%   have to list that person as a contributor here as well.
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

INITIALIZATION

```
A = zeros(4);%makes a matrix full of zeros
vals = [1 3 2 4;5 6 7 8;9 10 11 12;13 15 14 16];
```

COPY & CONCATENATION

```
M = vals(2:3,2:3);
C = vals(1,2:3);
D = vals(4,2:3);
E = [vals(1), D, vals(1,4)];%makes a vecotr of the values
F = [vals(4,1), C, vals(4,4)];
```

REPLACE MATRIX ELEMENTS

```
A(1,:) = E;
A(2:3,2:3) = M;
A(4,:) = F;


A(2,1) = vals(3,4);
A(3,1) = vals(2,4);
A(2,4) = vals(3,1);
A(3,4) = vals(2,1);
```

FINAL MATRIX

```
X = sum(A);%sums the col values
G = [A;X];%adds the x vector the bottom A


Y = sum(G,2);%sums the row values
H = [G Y];%puts the Y vector to the right of the G matrix

H(end,end) = H(1,1)+H(2,2)+H(3,3)+H(4,4);%add the sum of the first 4 diagonal values to the (end,end)
```

FORMATTED TEXT DISPLAY

```
format_center = 'After doing step 8.e, the value in the center of H is %i.\n';
format_upper = 'After doing step 8.e, the value in the upper left of H is %i, and the value in the upper right of H is %i.\n';
format_lower = 'After doing step 8.e, the value in the lower left of H is %d, and the value in lower right of H is %d.\n';
fprintf(format_center,H(3,3))
fprintf(format_upper, H(1,1), H(1,end))
fprintf(format_lower, H(1,end), H(end,end))
```

```
After doing step 8.e, the value in the center of H is 11.
After doing step 8.e, the value in the upper left of H is 1, and the value in the upper right of H is 34.
After doing step 8.e, the value in the lower left of H is 34, and the value in lower right of H is 34.
```

ACADEMIC INTEGRITY STATEMENT

We have not used source code obtained from any other unauthorized source, either modified or unmodified. Neither have we provided access to our code to another. The script we are submitting is our own original work.

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