Midterm, Code

Sonntag, 19. November 2023   09:45

Nr.1
   a) See: matrix.py (https://github.com/laurinboeger/Mid-term-take-home-assignment.git)
   b) See: matrix.py (https://github.com/laurinboeger/Mid-term-take-home-assignment.git)
   c) 10 Sample matrices solved with my code matrix.py:

1.

```
This is your matrix:

1.0  2.0

1.0  2.0

The matrix is not invertible!
```

2.

```
This is your matrix:

2.0  3.0  4.0

4.0  6.0  8.0

6.0  8.0  10.0

The matrix is not invertible!
```

3.

```
This is your matrix:

1.0  1.0  1.0  1.0

0.0  0.0  0.0  0.0

0.0  0.0  0.0  0.0

0.0  0.0  0.0  0.0

The matrix is not invertible!
```

4.

```
This is your matrix:

1.0  2.0

3.0  4.0

Do you want to solve the matrix for some b? (yes/no): no

This is your inverse matrix:

-2.0  1.0

1.5  -0.5
```

5.

```
This is your matrix:

1.0  2.0  3.0

4.0  5.0  6.0

7.0  8.0  9.0

The matrix is not invertible!
```

6.

7.

```
This is your matrix:

1.0  2.0  -4.0

2.0  3.0  4.0

1.0  2.0  2.0

Do you want to solve the matrix for some b? (yes/no): no

This is your inverse matrix:

0.333  2.0  -3.333

0.0  -1.0  2.0

-0.167  0.0  0.167
```

8.

```
This is your matrix:

-5.0  2.0

1.0  4.0

Do you want to solve the matrix for some b? (yes/no): no

This is your inverse matrix:

-0.182  0.091

0.045  0.227
```

9.

```
This is your matrix:

1.0  2.0  3.0  4.0

0.0  2.0  -3.0  2.0

1.0  3.0  2.0  4.0

2.0  1.0  2.0  -2.0

Do you want to solve the matrix for some b? (yes/no): noo
Do you want to solve the matrix for some b? (yes/no): no

This is your inverse matrix:

1.917  0.917  -2.083  0.583

-1.417  -0.417  1.583  -0.083

-0.417  -0.417  0.583  -0.083

0.792  0.292  -0.708  -0.042
```

10.

```
This is your matrix:

5.0  -2.0

0.0  1.0

Do you want to solve the matrix for some b? (yes/no): no

This is your inverse matrix:

0.2  0.4

0   1
```

```
This is your matrix:

-2.0  2.0  -2.0

4.0  3.0  1.0

1.0  2.0  3.0

Do you want to solve the matrix for some b? (yes/no): no

This is your inverse matrix:

-0.152  0.217  -0.174

0.239  0.087  0.13

-0.109  -0.13  0.304
```

a) Calculate the set of solutions for x with my python code matrix.py (https://github.com/laurinboeger/Mid-term-take-home-assignment.git)

```
This is your matrix:

1.0  2.0

3.0  4.0

Do you want to solve the matrix for some b? (yes/no): yes
Enter b1: 2
Enter b2: 3

This is your inverse matrix:

-2.0  1.0

1.5  -0.5


This is your set of solutions for x:

x1 = -1.0
x2 = 1.5
```

2b) Solve the system using my Code of Question 1:

```
Do you want to solve the matrix for some b? (yes/no): yes
Enter b1: 10
Enter b2: -21
Enter b3: -7

This is your inverse matrix:

5.333  1.5  2.833

0.667  0.5  0.167

0.333  0.0  0.333


This is your set of solutions for x:

x1 = 2.0
x2 = -5.0
x3 = 1.0
```

3) Support the solution with my code of Question 1:

```
This is your matrix:

1.0  2.0  3.0

0.0  1.0  4.0

5.0  6.0  0.0

Do you want to solve the matrix for some b? (yes/no): no

This is your inverse matrix:

-24.0  18.0  5.0

20.0  -15.0  -4.0

-5.0  4.0  1.0
```