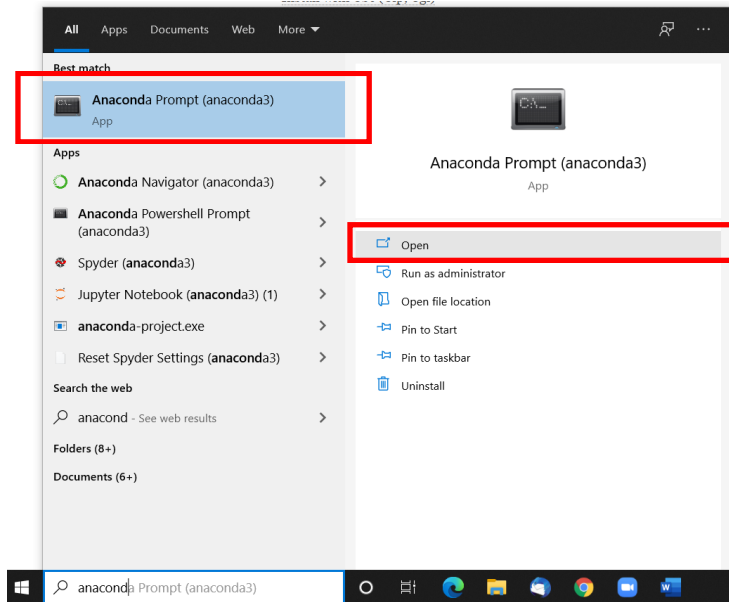
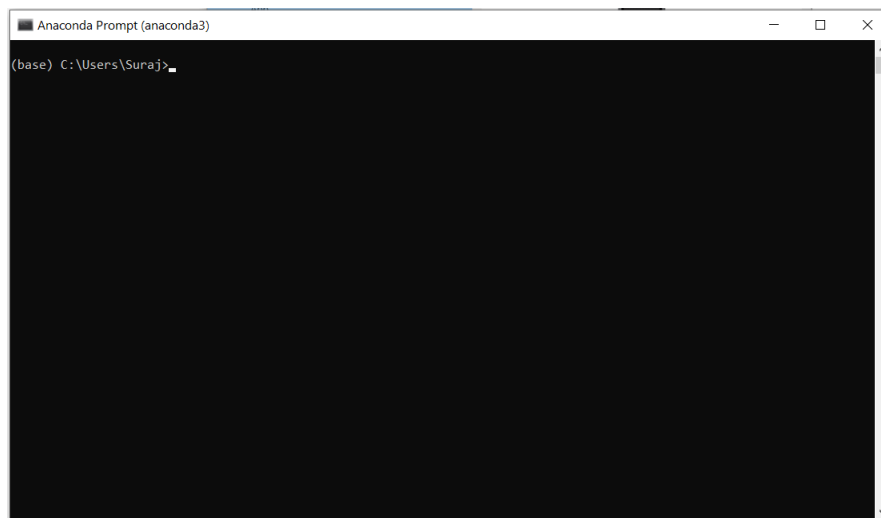


Steps for cvxpy (CVX for Python) installation:

1. Open 'anaconda prompt' on your computer by typing in the window's search. Note that 'anaconda prompt' and 'anaconda powershell prompt' are different.



It will appear like shown below:



2. Type the command below and enter.
`conda install -c conda-forge cvxpy`
3. Wait for the installation to complete. You may need to enter 'y' to proceed in between.

After cvxpy installation is complete, you may run the following test code in the Spyder:

```
# Import packages.
import cvxpy as cp
import numpy as np

# Generate data.
m = 20
n = 15
np.random.seed(1)
A = np.random.randn(m, n)
b = np.random.randn(m)

# Define and solve the CVXPY problem.
x = cp.Variable(n)
cost = cp.sum_squares(A @ x - b)
prob = cp.Problem(cp.Minimize(cost))
prob.solve()

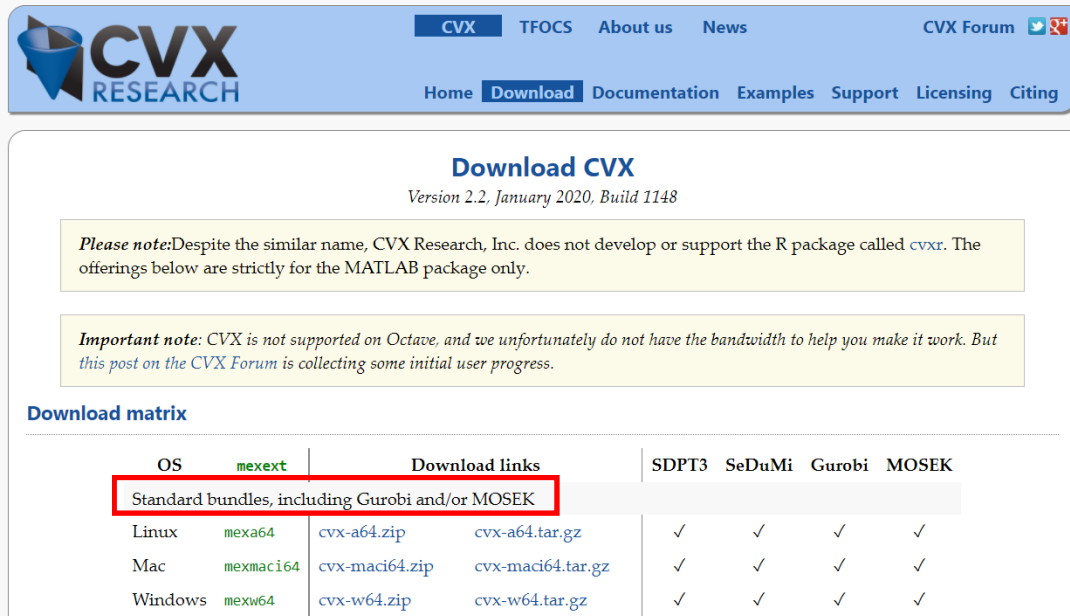
# Print result.
print("\nThe optimal value is", prob.value)
print("The optimal x is")
print(x.value)
print("The norm of the residual is ", cp.norm(A @ x - b, p=2).value)
```

Typical output:

```
The optimal value is 7.005909828287484
The optimal x is
[ 0.17492418 -0.38102551  0.34732251  0.0173098 -0.0845784 -0.08134019
  0.293119    0.27019762  0.17493179 -0.23953449  0.64097935
-0.41633637
  0.12799688  0.1063942 -0.32158411]
The norm of the residual is 2.6468679280023557
```

CVX for Matlab installation:

1. Download CVX from the link: <http://cvxr.com/cvx/download/>
Take the standard bundles.



Download CVX
Version 2.2, January 2020, Build 1148

Please note: Despite the similar name, CVX Research, Inc. does not develop or support the R package called `cvxr`. The offerings below are strictly for the MATLAB package only.

Important note: CVX is not supported on Octave, and we unfortunately do not have the bandwidth to help you make it work. But *this post on the CVX Forum* is collecting some initial user progress.

Download matrix

OS	mexext	Download links		SDPT3	SeDuMi	Gurobi	MOSEK
Standard bundles, including Gurobi and/or MOSEK							
Linux	mexa64	cvx-a64.zip	cvx-a64.tar.gz	✓	✓	✓	✓
Mac	mexmaci64	cvx-maci64.zip	cvx-maci64.tar.gz	✓	✓	✓	✓
Windows	mexw64	cvx-w64.zip	cvx-w64.tar.gz	✓	✓	✓	✓

2. Instructions for installation are given at the link: <http://cvxr.com/cvx/doc/install.html>

After installation is complete, you may run the following test code in the Matlab:

```
M = 25; N = 5;
A = randn(M,N); b = randn(M,1);
cvx_begin
    variable x(N)
    minimize( norm( A * x - b, 2 ) )
    subject to
        norm( x, 1 ) <= 1
cvx_end
```

Typical output:

```
Status: Solved
Optimal value (cvx_optval): +3.54922
```

```
>> x
```

```
x =
```

```
    0.0753
    0.2948
    0.1315
    0.0455
   -0.1619
```