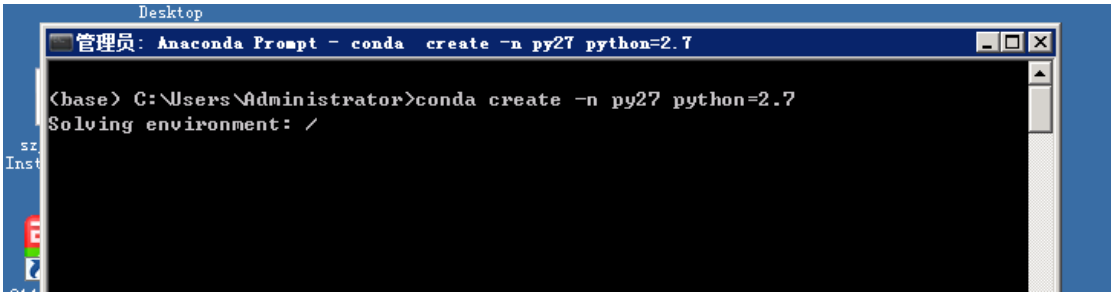
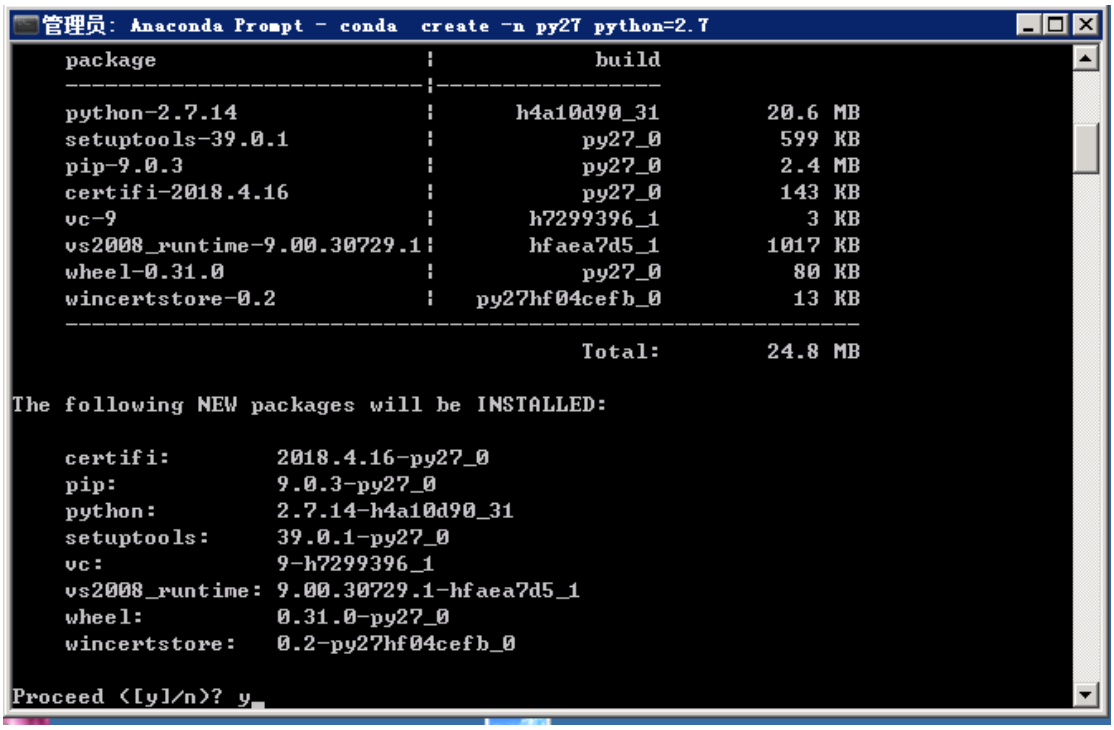
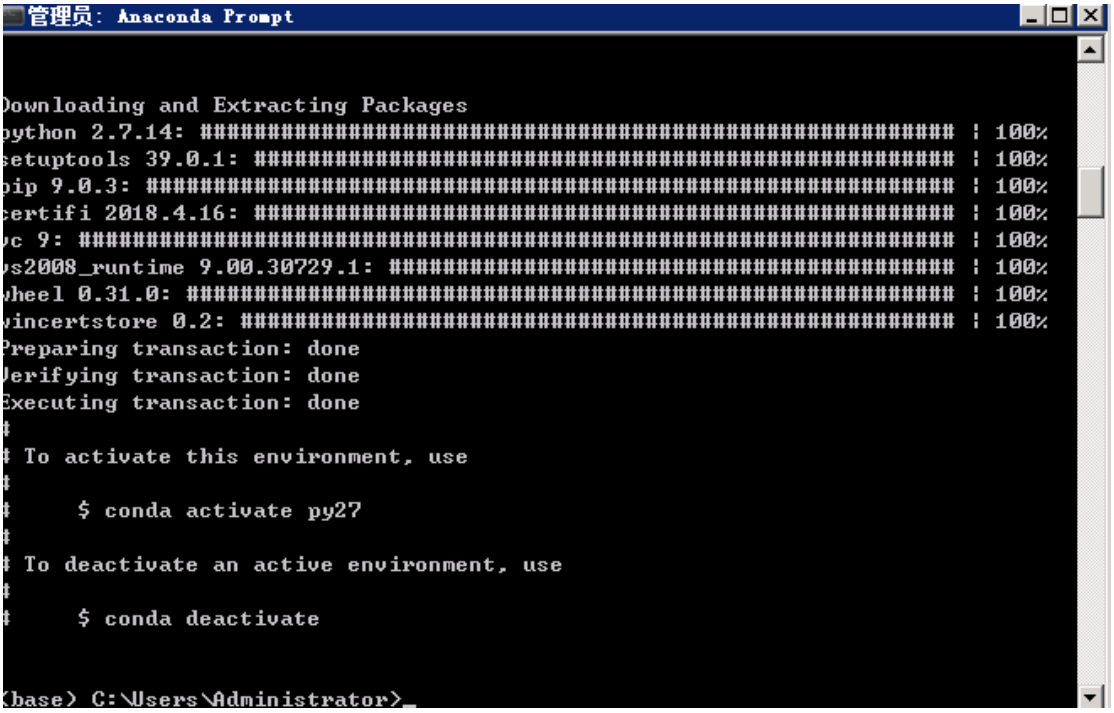
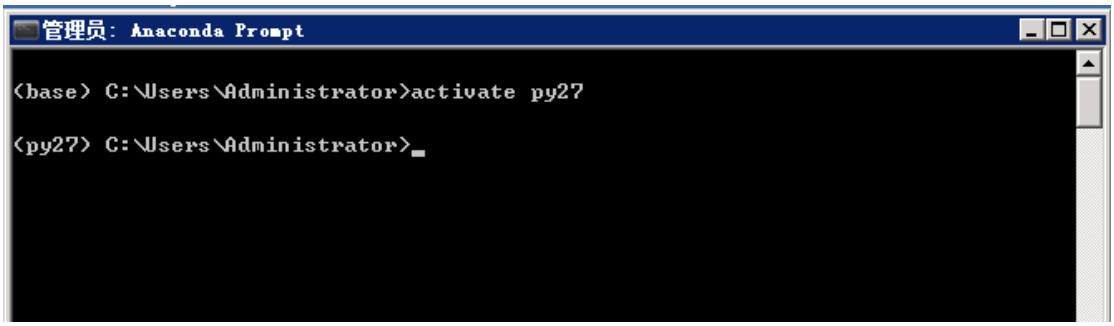
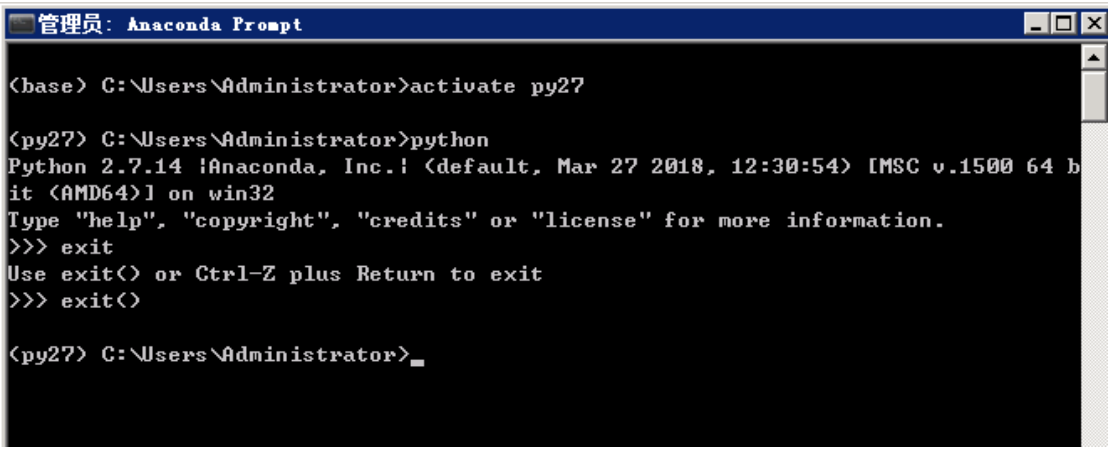
来自与万门大学实用数据挖掘与人工智能一月特训班






管理员: Anaconda Prompt
Downloading and Extracting Packages
python 2.7.14: ## | 100%
setuptools 39.0.1: ## | 100%
pip 9.0.3: ## | 100%
certifi 2018.4.16: ## | 100%
vc 9: ## | 100%
vs2008_runtime 9.00.30729.1: ## | 100%
wheel 0.31.0: ## | 100%
wincertstore 0.2: ## | 100%
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
To activate this environment, use
#
$ conda activate py27
#
To deactivate an active environment, use
#
$ conda deactivate
(base) C:\Users\Administrator>


管理员: Anaconda Prompt
(base) C:\Users\Administrator>activate py27
(py27) C:\Users\Administrator>


管理员: Anaconda Prompt
(base) C:\Users\Administrator>activate py27
(py27) C:\Users\Administrator>python
Python 2.7.14 |Anaconda, Inc.| (default, Mar 27 2018, 12:30:54) [MSC v.1500 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> exit
Use exit() or Ctrl-Z plus Return to exit
>>> exit()
(py27) C:\Users\Administrator>

```
(base) C:\Users\Administrator>python
Python 3.6.4 |Anaconda, Inc.| (default, Jan 16 2018, 10:22:32) [MSC v.1900 64 bi
t (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> exit()

(base) C:\Users\Administrator>activate py27

(py27) C:\Users\Administrator>python
Python 2.7.14 |Anaconda, Inc.| (default, Mar 27 2018, 12:30:54) [MSC v.1500 64 b
it (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> exit()

(py27) C:\Users\Administrator>pip install ipykernel
Collecting ipykernel
```

```
(py27) C:\Users\Administrator>python -m ipykernel install --name Py27
Installed kernelspec Py27 in C:\ProgramData\jupyter\kernels\py27

(py27) C:\Users\Administrator>
```

kernel.json - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

```
{
 "display_name": "Py27",
 "language": "python",
 "argv": [
  "C:\\ProgramData\\Anaconda3\\envs\\py27\\python.exe",
  "-m",
  "ipykernel_launcher",
  "-f",
  "{connection_file}"
 ]
}
```

```
conda create -n env_name python=2.7

activate env_name
```

mac user > source activate env_name

windows user > activate env_name

```
pip install ipykernel

python -m ipykernel install --name Py27wanmen
```

my kernel space address is:

C:\ProgramData\jupyter\kernels\py27wanmen

```
(py27) C:\Users\Administrator>deactivate

(base) C:\Users\Administrator>_
```

```
(py27) C:\Users\Administrator>deactivate

(base) C:\Users\Administrator>jupyter kernelspec list
Available kernels:
  python3    C:\ProgramData\Anaconda3\share\jupyter\kernels\python3
  py27       C:\ProgramData\jupyter\kernels\py27

(base) C:\Users\Administrator>_
```

安装决策树可视化工具 Graphviz

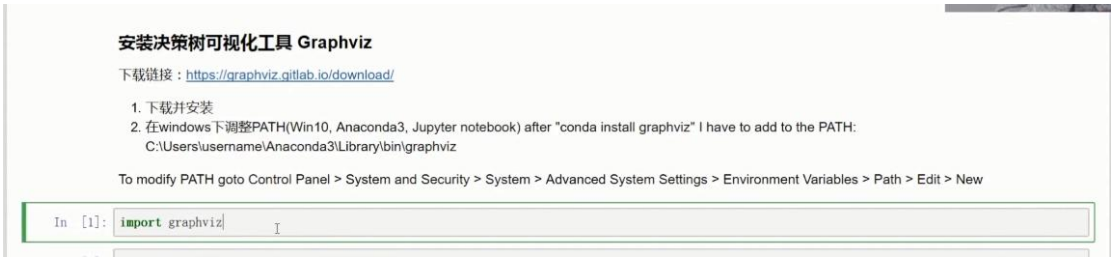
下载链接：https://graphviz.gitlab.io/download/

解压

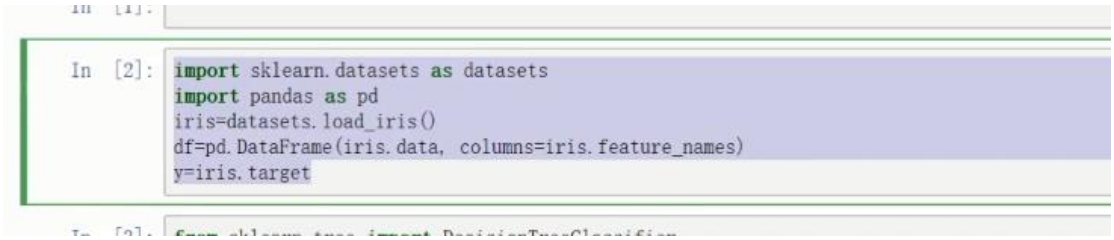
Path 环境变量设置

C:\software\graphviz-2.38\release\bin


```
(base) C:\Users\Administrator>conda install graphviz
Solving environment: done


==> WARNING: A newer version of conda exists. <==
  current version: 4.4.10
  latest version: 4.5.1

Please update conda by running

    $ conda update -n base conda



## Package Plan ##

  environment location: C:\ProgramData\Anaconda3

  added / updated specs:
    - graphviz


The following packages will be downloaded:

    package                    |            build
    ---------------------------|-----------------
```




```
(base) C:\Users\Administrator>pip install graphviz
Collecting graphviz
  Downloading https://files.pythonhosted.org/packages/05/e4/8fcc76823534d47f079c
0ff1b3d8b57784e8fba63ceb1ded32c9f4dd993c/graphviz-0.8.2-py2.py3-none-any.whl
Installing collected packages: graphviz
Successfully installed graphviz-0.8.2
You are using pip version 9.0.1, however version 10.0.1 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' comm
and.

(base) C:\Users\Administrator>
```



```
In [2]: import sklearn.datasets as datasets
        import pandas as pd
        iris=datasets.load_iris()
        df=pd.DataFrame(iris.data, columns=iris.feature_names)
        y=iris.target
```

```
(base) C:\Users\Administrator>pip install pygraphviz
Collecting pygraphviz
  Downloading https://files.pythonhosted.org/packages/98/bb/a32e33f7665b921c9262
09305dde66fe41003a4ad934b10efb7c1211a419/pygraphviz-1.3.1.tar.gz (103kB)
    39% |                                        | 40kB 291kB/s eta 0:00:01
    49% |                                        | 51kB 328kB/s eta 0:00
    59% |                                        | 61kB 358kB/s eta 0
    69% |                                        | 71kB 417kB/s e
    79% |                                        | 81kB 437kB/
    89% |                                        | 92kB 492
    99% |                                        | 102kB
```

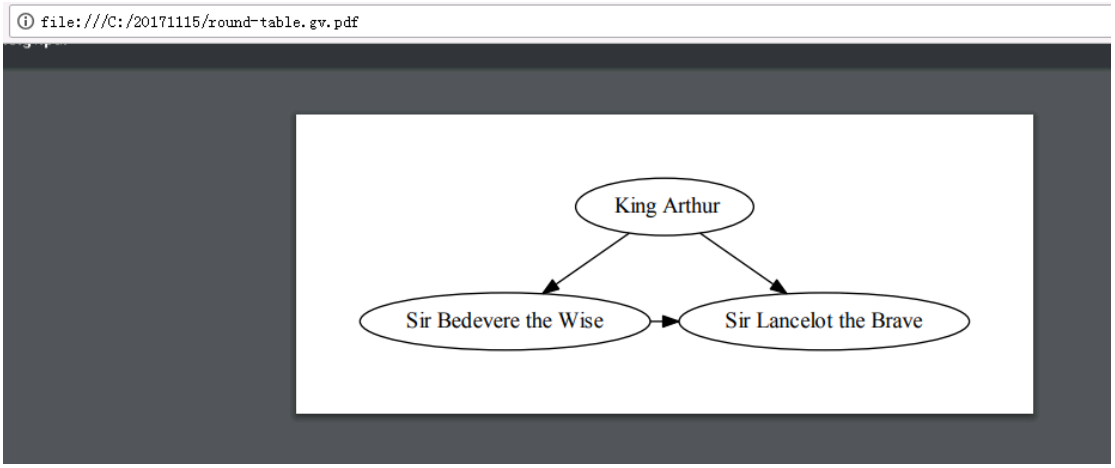
注意：编辑界面需要从菜单进入

```
from graphviz import Digraph
dot = Digraph(comment='The Round Table')
dot  #doctest: +ELLIPSIS

dot.node('A', 'King Arthur')
dot.node('B', 'Sir Bedevere the Wise')
dot.node('L', 'Sir Lancelot the Brave')
```

```
dot.edges(['AB', 'AL'])
dot.edge('B', 'L', constraint='false')
print(dot.source)  # doctest: +NORMALIZE_WHITESPACE

#dot.render('C:\\20171115\\round-table.gv', view=True)  # doctest: +SKIP
dot.render('C:\\20171115\\round-table3.gv', view=True)  # doctest: +SKIP
```

```
from graphviz import Digraph

dot = Digraph(comment='The Round Table')


dot.node('A', ' King Arthur')
dot.view()  #后面这句就注释了，也可以使用这个命令查看效果


dot.node('B', 'Sir Bedevere the Wise')
#dot.view()


dot.node('L', 'Sir Lancelot the Brave')
#dot.view()

#创建一堆边，即连接 AB 的边，连接 AL 的边。
dot.edges(['AB', 'AL'])
#dot.view()


dot.edge('B', 'L', constraint='false')
#dot.view()

#获取 DOT source 源码的字符串形式
print(dot.source)
 # doctest: +NORMALIZE_WHITESPACE
#The Round Table
#digraph {
#    A [label="King Arthur"]
#    B [label="Sir Bedevere the Wise"]
#    L [label="Sir Lancelot the Brave"]
#        A -> B
#        A -> L
#        B -> L [constraint=false]
#}

#保存 source 到文件，并提供 Graphviz 引擎
dot.render('C:\\20171115\\round-table.gv', view=True)
```

运行效果



round-table.gv - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

```
// The Round Table
digraph {
        A [label=" King Arthur"]
        B [label="Sir Bedevere the Wise"]
        L [label="Sir Lancelot the Brave"]
        A -> B
        A -> L
        B -> L [constraint=false]
}
```

Python 工具包

2. 几个重要的工具

```
import numpy as np
import scipy
import pandas as pd
import sklearn
import keras.backend as K
import tensorflow as tf
```

例如：numpy

In [2]:

```
import numpy as np
A=np.array([1,2,3])
B=np.array([4,3,0])
print ('A+B=',np.add(A,B))
```

```
A+B= [5 5 3]
```

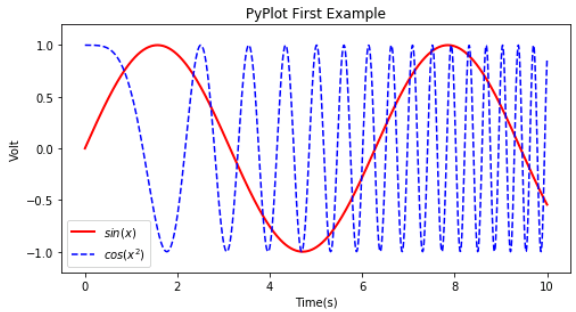
例如

jupyter Untitled20 Last Checkpoint: 15分钟前 (autosaved)

File Edit View Insert Cell Kernel Widgets Help

Run Code

In [5]:
```
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0, 10, 1000)
y = np.sin(x)
z = np.cos(x**2)

plt.figure(figsize=(8,4))

plt.plot(x,y,label="$sin(x)$",color="red",linewidth=2)
plt.plot(x,z,"b--",label="$cos(x^2)$")

plt.xlabel("Time(s)")
plt.ylabel("Volt")
plt.title("PyPlot First Example")
plt.ylim(-1.2,1.2)
plt.legend()

plt.show()
```



jupyter Untitled20 Last Checkpoint: 21分钟前 (autosaved)

File Edit View Insert Cell Kernel Widgets Help

Run Code

In [6]:
```
import numpy as np
a = np.array([[1,2,3,4,5],[6,7,8,9,10]])

print(a.shape) #结果返回一个tuple元组 (2L, 5L)
print(a.shape[0]) #获得行数，返回 2
print(a.shape[1]) #获得列数，返回 5
```

```
(2, 5)
2
5
```

In [ ]: