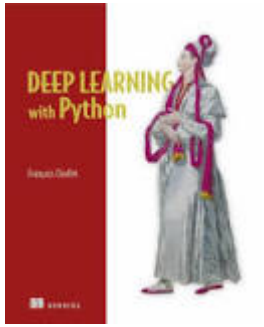
Derin öğrenme ve

Ders Konuları
Derin öğrenmeye giriş, Matematiksel temeller, tensor işlemleri
Graident descent, backpropagation, kayıp fonksiyonları
Keras deeplearning kütüphanesi, Python ile kullanım örnekleri
Makine öğrenmesi temelleri
Veri önişleme, aşırı uydurma
Convolutional (evrişimli) Sinir Ağları (convnets)
Ön eğitimli convnet ile özellik çıkarma, Transfer Learning
Metin verisi ile derin öğrenme, Emebedding katmanları
Recurrent neural networks, LSTM ve GRU
1D convnets ile dizi işleme
Keras functional API, Keras çağrılarının kullanımı
Üretken (generative) derin öğrenme
Güncel konular
Sunumlar

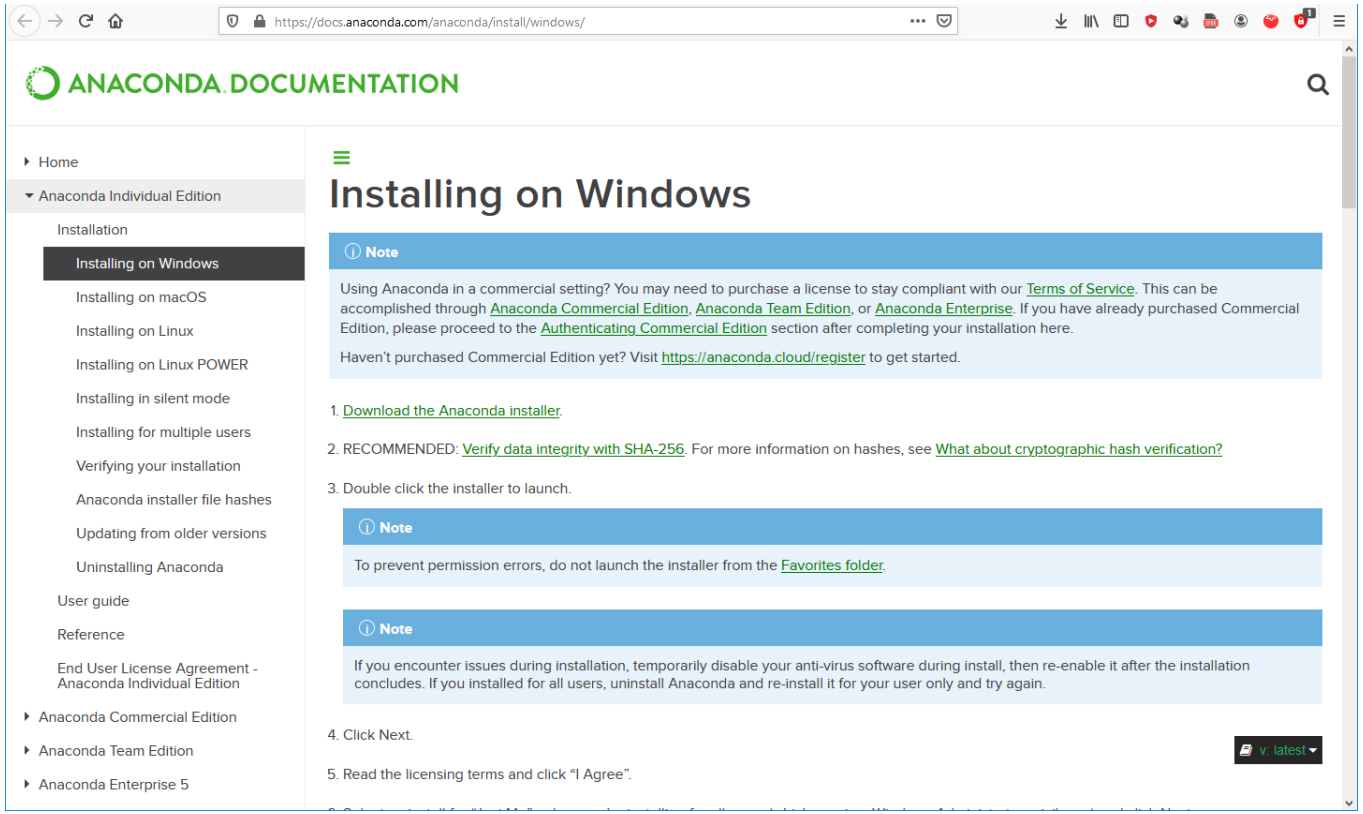
Değerlendirme Sistemi	
Yarıyıl Çalışmaları	Katkı Oranı
1. Proje / Tasarım	20
1. Ara Sınav	50
1. Ödev	15
2. Ödev	15
Toplam	100
1. Final	50
1. Yıl İçinin Başarıya	50
Toplam	100



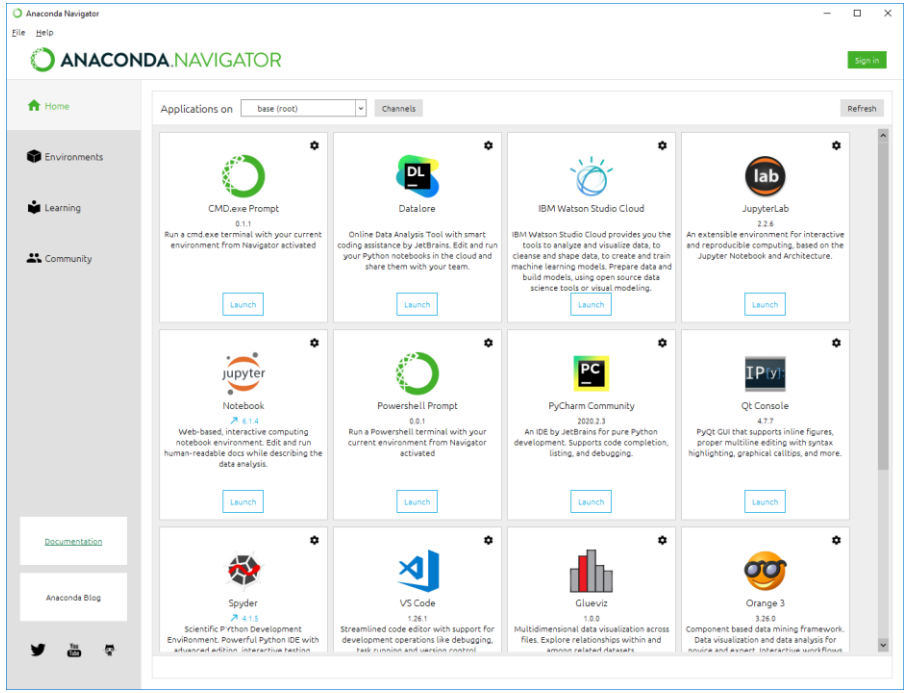
Deep Learning with Python, François Chollet

https://github.com/fchollet/deep-learning-with-python-notebooks

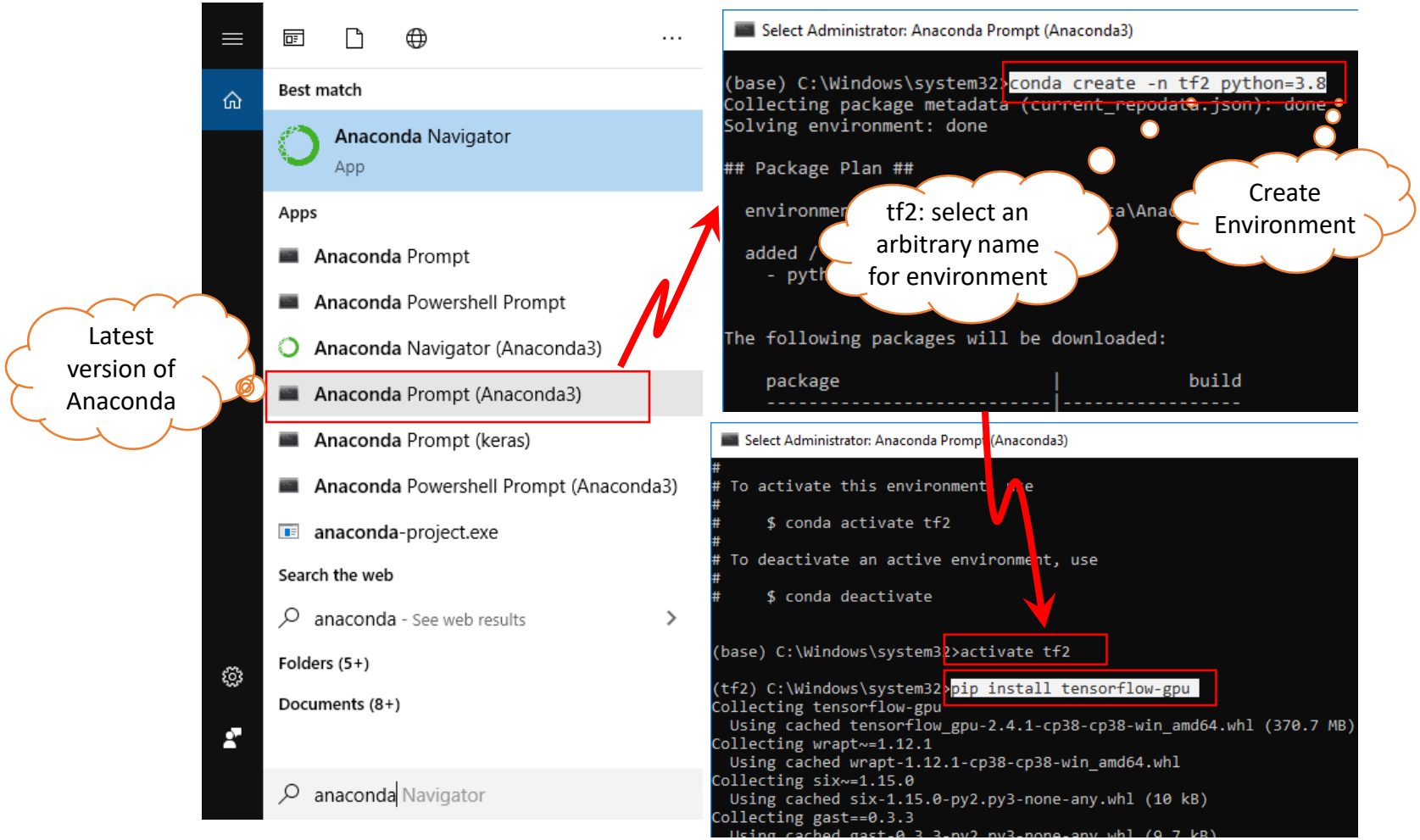
Install Anaconda



- https://docs.anaconda.com/anaconda/install/

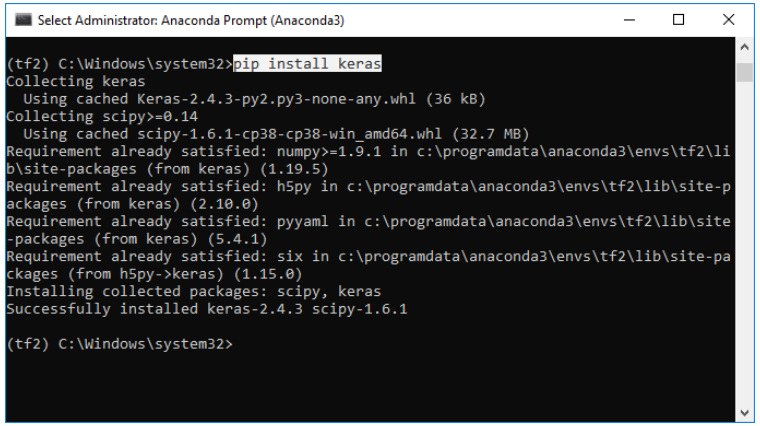


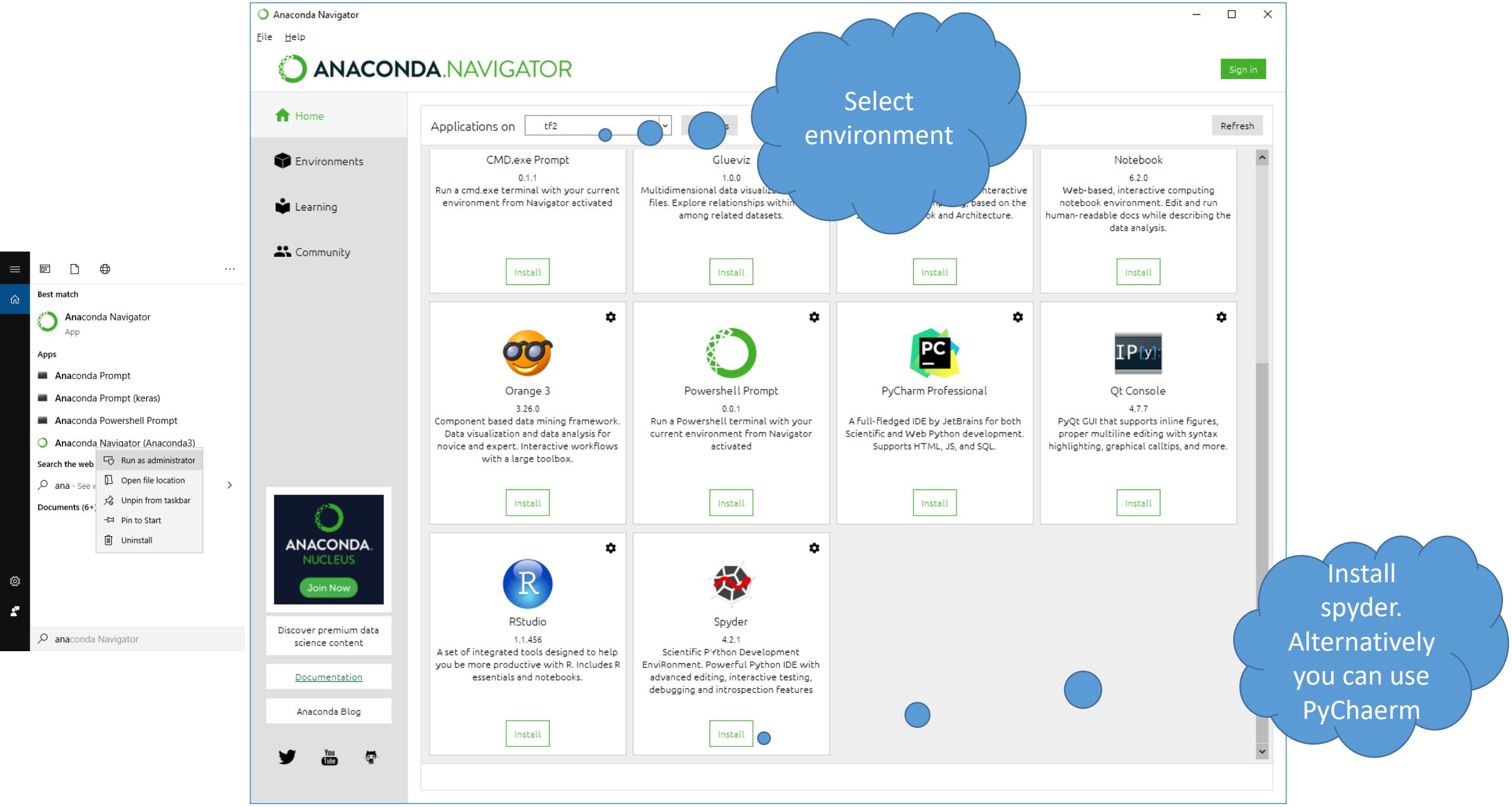
Install TensorFlow 2 and Keras



Install TensorFlow 2 and Keras

- Install sympy if required.
- pip install sympy
- Install keras
- pip install keras

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Home
Environments
Learning
Community
Applications on
tf2
Refresh
Select environment
CMD.exe Prompt
0.1.1
Run a cmd.exe terminal with your current environment from Navigator activated
Install
Glueviz
1.0.0
Multidimensional data visualiz
files. Explore relationships within
among related datasets.
Install
Notebook
6.2.0
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Install
Orange 3
3.26.0
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.
Install
Powershell Prompt
0.0.1
Run a Powershell terminal with your current environment from Navigator activated
Install
PyCharm Professional
A full-fledged IDE by JetBrains for both Scientific and Web Python development. Supports HTML, JS, and SQL.
Install
Qt Console
4.7.7
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Install
RStudio
1.1.456
A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.
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Spyder
4.2.1
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
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Documents (6+)
Run as administrator
Open file location
Unpin from taskbar
Pin to Start
Uninstall
anaconda Navigator
Install spyder. Alternatively you can use PyChaerm

Check Tensorflow version

- Now we can be able to import tensorflow and keras
- In addition we can use GPU support.
- Assuming you have Nvidia gpu, install:
  - Nvidia drivers
  - Cuda toolkit
  - cuDnn

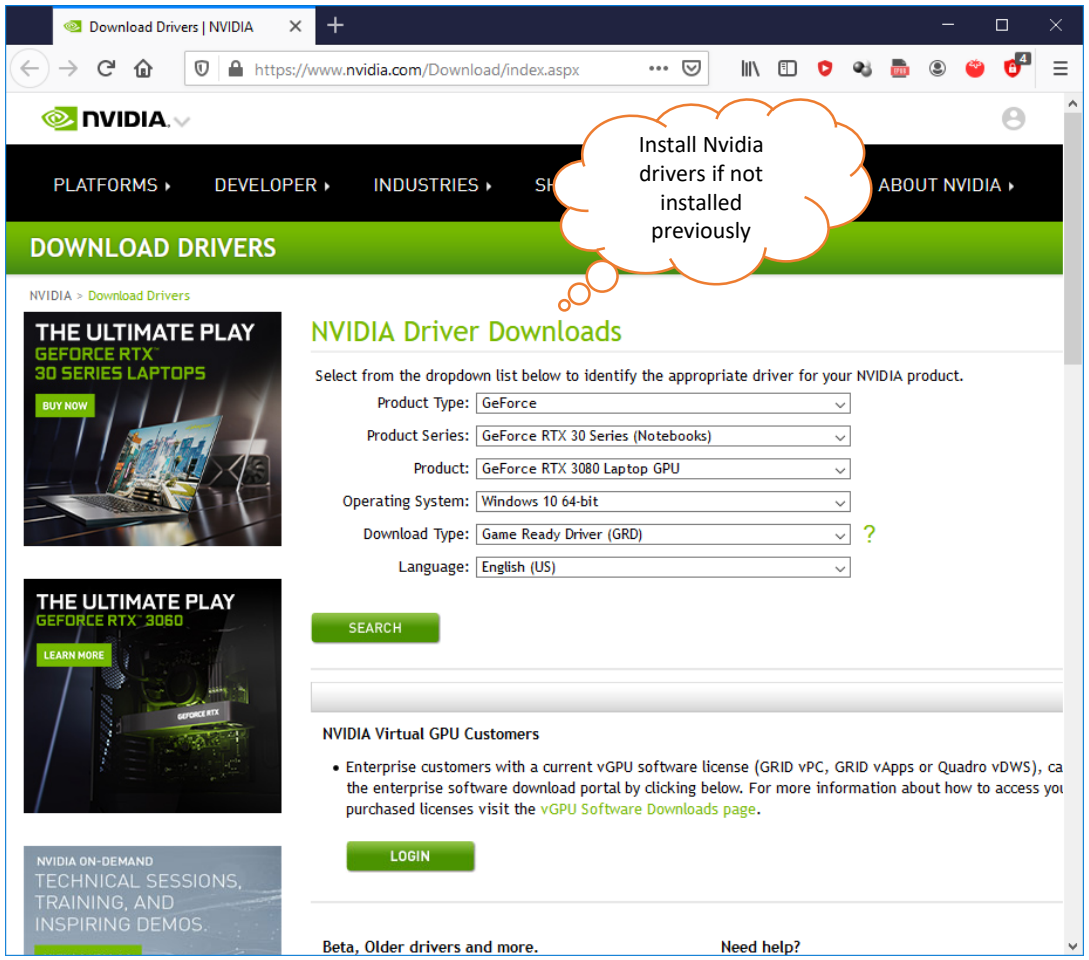
```
In [1]: import tensorflow as tf

In [2]: tf.__version__
Out[2]: '2.4.1'

In [3]: import keras

In [4]: keras.__version__
Out[4]: '2.4.3'
```

GPU usage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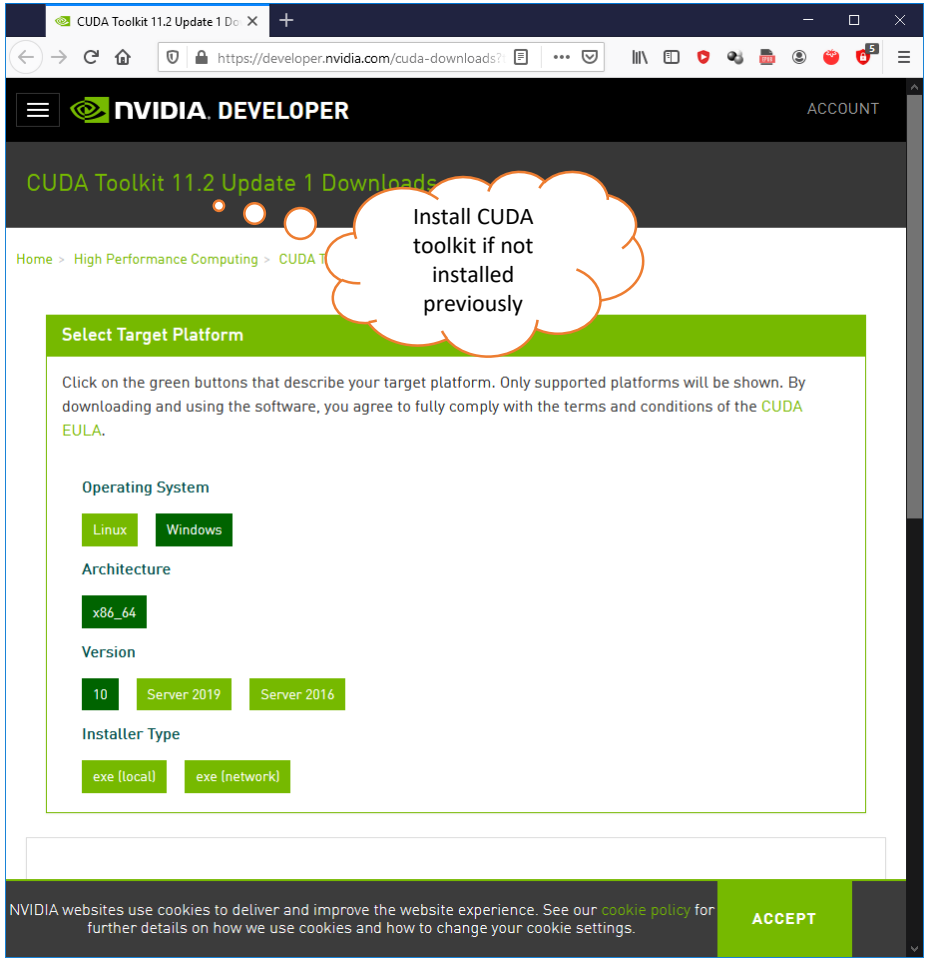
CUDA Toolkit 11.2 Update 1 Do
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Install CUDA toolkit if not installed previously
Home > High Performance Computing > CUDA T
Select Target Platform
Click on the green buttons that describe your target platform. Only supported platforms will be shown. By downloading and using the software, you agree to fully comply with the terms and conditions of the CUDA EULA.
Operating System
Linux
Windows
Architecture
x86_64
Version
10
Server 2019
Server 2016
Installer Type
exe (local)
exe (network)
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GPU usage


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NVIDIA cuDNN is a GPU-accelerated library of primitives for deep neural networks.
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Note: Please refer to the Installation Guide for release prerequisites, including supported GPU architectures and compute capabilities, before downloading.
For more information, refer to the cuDNN Developer Guide, Installation Guide and Release Notes on the Deep Learning SDK Documentation web page.
Download cuDNN v8.1.0 (January 26th, 2021), for CUDA 11.0,11.1 and 11.2
Library for Windows and Linux, Ubuntu(x86_64, armsbsa, PPC architecture)
cuDNN Library for Linux (aarch64sbsa)
cuDNN Library for Linux (x86_64)
cuDNN Library for Linux (PPC)
cuDNN Library for Windows (x86)
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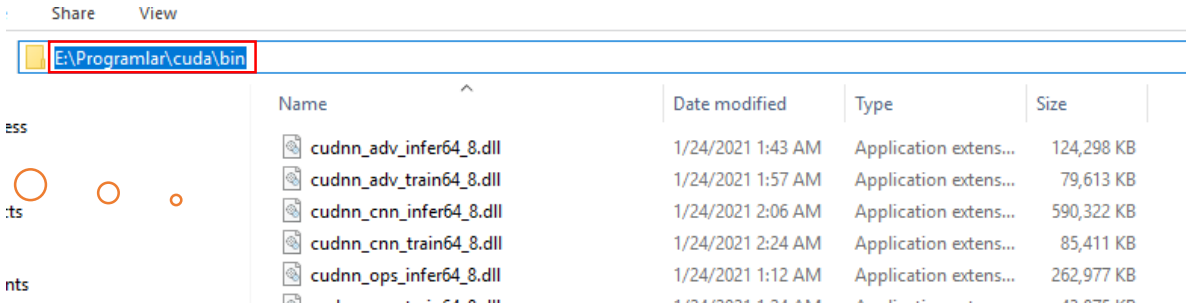
windo
Highlight All Match Case Match Diacritics Whole Words 2 of 2 matches


Share View
E:\Programlar\cuda\bin
Name
Date modified
Type
Size
cudnn_adv_infer64_8.dll 1/24/2021 1:43 AM Application extens... 124,298 KB
cudnn_adv_train64_8.dll 1/24/2021 1:57 AM Application extens... 79,613 KB
cudnn_cnn_infer64_8.dll 1/24/2021 2:06 AM Application extens... 590,322 KB
cudnn_cnn_train64_8.dll 1/24/2021 2:24 AM Application extens... 85,411 KB
cudnn_ops_infer64_8.dll 1/24/2021 1:12 AM Application extens... 262,977 KB
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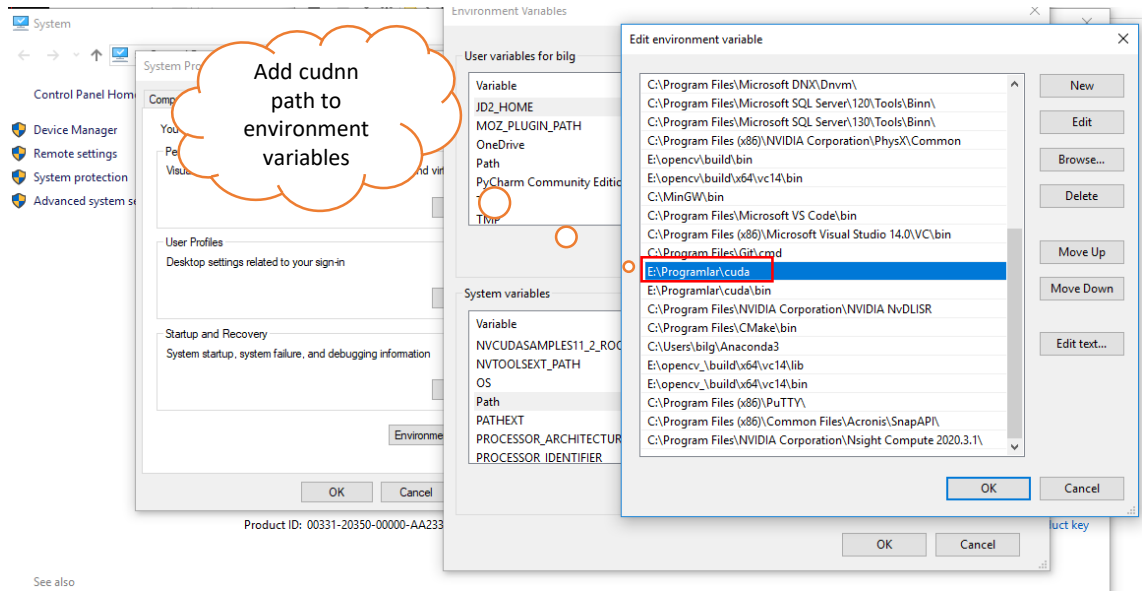
Add cudnn path to environment variables
Environment Variables
User variables for bilg
Variable
JD2_HOME
MOZ_PLUGIN_PATH
OneDrive
Path
PyCharm Community Editic
System variables
Variable
NVCUDASAMPLES11_2_ROO
NVTOOLSEXT_PATH
OS
Path
PATHEXT
PROCESSOR_ARCHITECTUR
PROCESSOR_IDENTIFIER
Edit environment variable
C:\Program Files\Microsoft DNX\Dnvm\
C:\Program Files\Microsoft SQL Server\120\Tools\Binn\
C:\Program Files\Microsoft SQL Server\130\Tools\Binn\
C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common
E:\opencv\build\bin
E:\opencv\build\x64\vc14\bin
C:\MinGW\bin
C:\Program Files\Microsoft VS Code\bin
C:\Program Files (x86)\Microsoft Visual Studio 14.0\VC\bin
E:\Programlar\cuda
E:\Programlar\cuda\bin
C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR
C:\Program Files\CMake\bin
C:\Users\bilg\Anaconda3
E:\opencv_\build\x64\vc14\lib
E:\opencv_\build\x64\vc14\bin
C:\Program Files (x86)\PuTTY\
C:\Program Files (x86)\Common Files\Acronis\SnapAPI\
C:\Program Files\NVIDIA Corporation\Nsight Compute 2020.3.1\
New
Edit
Browse...
Delete
Move Up
Move Down
Edit text...
OK
Cancel
Control Panel Hom
Device Manager
Remote settings
System protection
Advanced system s
User Profiles
Desktop settings related to your sign-in
Startup and Recovery
System startup, system failure, and debugging information
Product ID: 00331-20350-00000-AA233
See also

Check devices

```
In [5]: tf.config.list_physical_devices()
Out[5]:
[PhysicalDevice(name='/physical_device:CPU:0', device_type='CPU'),
 PhysicalDevice(name='/physical_device:GPU:0', device_type='GPU')]

In [6]: from tensorflow.python.client import device_lib

In [7]: device_lib.list_local_devices()
Out[7]:
[name: "/device:CPU:0"
 device_type: "CPU"
 memory_limit: 268435456
 locality {
 }
 incarnation: 4660027034740465548,
 name: "/device:GPU:0"
 device_type: "GPU"
 memory_limit: 1428674969
 locality {
   bus_id: 1
   links {
   }
 }
 incarnation: 10695275825623740566
 physical_device_desc: "device: 0, name: GeForce GTX 960M, pci bus id: 0000:01:00.0,
compute capability: 5.0"]
```