ECE 5831- Pattern Recognition and Neural Networks

HomeWork 1

- Install Anaconda on your computer.
  - [https://www.anaconda.com/downloadLinks to an external site.](https://www.anaconda.com/download)
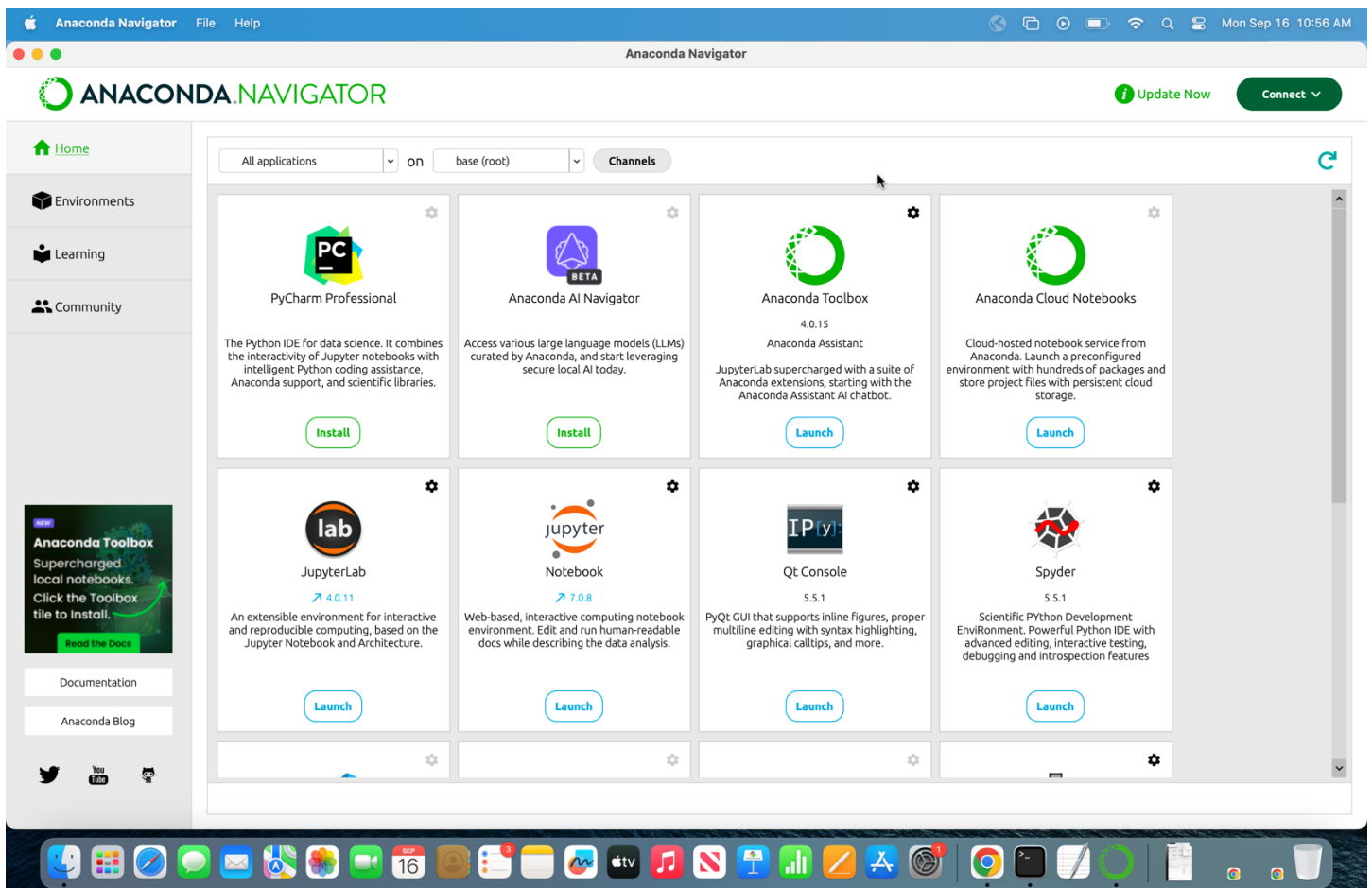
- Create a conda env with
  - Name: ece5831-2024
  - Python 3.10.nn

```
Last login: Sun Sep 15 16:30:03 on ttys000
(base) aishwaryadekhane@Aishwaryas-MacBook-Air ~ % which python
/opt/anaconda3/bin/python
(base) aishwaryadekhane@Aishwaryas-MacBook-Air ~ % python -V
Python 3.12.4
(base) aishwaryadekhane@Aishwaryas-MacBook-Air ~ % conda create --name ece5831-2024 python=3.12.4 anaconda
Retrieving notices: ...working... done
Channels:
 - defaults
Platform: osx-arm64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: /opt/anaconda3/envs/ece5831-2024

  added / updated specs:
    - anaconda
    - python=3.12.4


The following packages will be downloaded:

    package                    |              build
    ---------------------------|-----------------
    anaconda-2024.06           | py312_openblas_2         108 KB
    ---------------------------------------------------------
                                          Total:         108 KB

The following NEW packages will be INSTALLED:

  abseil-cpp         pkgs/main/osx-arm64::abseil-cpp-20230802.0-h313beb8_2
  aiobotocore        pkgs/main/osx-arm64::aiobotocore-2.12.3-py312hca03da5_0
  aiohttp            pkgs/main/osx-arm64::aiohttp-3.9.5-py312h80987f9_0
  aioitertools       pkgs/main/noarch::aioitertools-0.7.1-pyhd3eb1b0_0
  aiosignal          pkgs/main/noarch::aiosignal-1.2.0-pyhd3eb1b0_0
  alabaster          pkgs/main/osx-arm64::alabaster-0.7.16-py312hca03da5_0
  altair             pkgs/main/osx-arm64::altair-5.0.1-py312hca03da5_0
  anaconda           pkgs/main/osx-arm64::anaconda-2024.06-py312_openblas_2
  anyio              pkgs/main/osx-arm64::anyio-4.2.0-py312hca03da5_0
  aom                pkgs/main/osx-arm64::aom-3.6.0-h313beb8_0
  appdirs            pkgs/main/noarch::appdirs-1.4.4-pyhd3eb1b0_0
  applaunchservices  pkgs/main/osx-arm64::applaunchservices-0.3.0-py312hca03da5_0
  appnope            pkgs/main/osx-arm64::appnope-0.1.3-py312hca03da5_1001
  appscript          pkgs/main/osx-arm64::appscript-1.1.2-py312h80987f9_0
  argon2-cffi        pkgs/main/noarch::argon2-cffi-21.3.0-pyhd3eb1b0_0
  argon2-cffi-bindi~ pkgs/main/osx-arm64::argon2-cffi-bindings-21.2.0-py312h80987f9_0
  arrow              pkgs/main/osx-arm64::arrow-1.2.3-py312hca03da5_1
  arrow-cpp          pkgs/main/osx-arm64::arrow-cpp-14.0.2-hc7aafb3_1
  astroid            pkgs/main/osx-arm64::astroid-2.14.2-py312hca03da5_0
  astropy            pkgs/main/osx-arm64::astropy-6.1.0-py312ha86b861_0
  astropy-iers-data  pkgs/main/osx-arm64::astropy-iers-data-0.2024.6.3.0.31.14-py312hca03da5_0
  asttokens          pkgs/main/noarch::asttokens-2.0.5-pyhd3eb1b0_0
  async-lru          pkgs/main/osx-arm64::async-lru-2.0.4-py312hca03da5_0
  atomicwrites       pkgs/main/noarch::atomicwrites-1.4.0-py_0
  attrs              pkgs/main/osx-arm64::attrs-23.1.0-py312hca03da5_0
  automat            pkgs/main/noarch::automat-20.2.0-py_0
  autopep8           pkgs/main/noarch::autopep8-2.0.4-pyhd3eb1b0_0
  aws-c-auth         pkgs/main/osx-arm64::aws-c-auth-0.6.19-h80987f9_0
  aws-c-cal          pkgs/main/osx-arm64::aws-c-cal-0.5.20-h80987f9_0
  aws-c-common       pkgs/main/osx-arm64::aws-c-common-0.8.5-h80987f9_0
  aws-c-compression  pkgs/main/osx-arm64::aws-c-compression-0.2.16-h80987f9_0
  aws-c-event-stream pkgs/main/osx-arm64::aws-c-event-stream-0.2.15-h313beb8_0
  aws-c-http         pkgs/main/osx-arm64::aws-c-http-0.6.25-h80987f9_0
```

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tomlkit              pkgs/main/osx-arm64::tomlkit-0.11.1-py312hca03da5_0
toolz                pkgs/main/osx-arm64::toolz-0.12.0-py312hca03da5_0
tornado              pkgs/main/osx-arm64::tornado-6.4.1-py312h80987f9_0
tqdm                 pkgs/main/osx-arm64::tqdm-4.66.4-py312h989b03a_0
traitlets            pkgs/main/osx-arm64::traitlets-5.14.3-py312hca03da5_0
twisted              pkgs/main/osx-arm64::twisted-23.10.0-py312hca03da5_0
typing-extensions    pkgs/main/osx-arm64::typing-extensions-4.11.0-py312hca03da5_0
typing_extensions    pkgs/main/noarch::typing_extensions-4.11.0-py312hca03da5_0
tzdata               pkgs/main/noarch::tzdata-2024a-h04d1e81_0
uc-micro-py          pkgs/main/osx-arm64::uc-micro-py-1.0.1-py312hca03da5_0
ujson                pkgs/main/osx-arm64::ujson-5.10.0-py312h313beb8_0
unicodedata2         pkgs/main/osx-arm64::unicodedata2-15.1.0-py312h80987f9_0
unidecode            pkgs/main/noarch::unidecode-1.2.0-pyhd3eb1b0_0
unixodbc             pkgs/main/osx-arm64::unixodbc-2.3.11-h1a28f6b_0
urllib3              pkgs/main/osx-arm64::urllib3-2.2.2-py312hca03da5_0
utf8proc             pkgs/main/osx-arm64::utf8proc-2.6.1-h80987f9_1
w3lib                pkgs/main/osx-arm64::w3lib-2.1.2-py312hca03da5_0
watchdog             pkgs/main/osx-arm64::watchdog-4.0.1-py312h80987f9_0
wcwidth              pkgs/main/noarch::wcwidth-0.2.5-pyhd3eb1b0_0
webencodings         pkgs/main/osx-arm64::webencodings-0.5.1-py312hca03da5_2
websocket-client     pkgs/main/osx-arm64::websocket-client-1.8.0-py312hca03da5_0
werkzeug             pkgs/main/osx-arm64::werkzeug-3.0.3-py312hca03da5_0
whatthepatch         pkgs/main/osx-arm64::whatthepatch-1.0.2-py312hca03da5_0
wheel                pkgs/main/osx-arm64::wheel-0.43.0-py312hca03da5_0
widgetsnbextension   pkgs/main/osx-arm64::widgetsnbextension-3.6.6-py312hca03da5_0
wrapt                pkgs/main/osx-arm64::wrapt-1.14.1-py312h80987f9_0
wurlitzer            pkgs/main/osx-arm64::wurlitzer-3.0.2-py312hca03da5_0
xarray               pkgs/main/osx-arm64::xarray-2023.6.0-py312hca03da5_0
xlwings              pkgs/main/osx-arm64::xlwings-0.31.4-py312hca03da5_0
xyzservices          pkgs/main/osx-arm64::xyzservices-2022.9.0-py312hca03da5_1
xz                   pkgs/main/osx-arm64::xz-5.4.6-h80987f9_1
yaml                 pkgs/main/osx-arm64::yaml-0.2.5-h1a28f6b_0
yapf                 pkgs/main/osx-arm64::yapf-0.40.2-py312hca03da5_0
yarl                 pkgs/main/osx-arm64::yarl-1.9.3-py312h80987f9_0
zeromq               pkgs/main/osx-arm64::zeromq-4.3.5-h313beb8_0
zfp                  pkgs/main/osx-arm64::zfp-1.0.0-h313beb8_0
zict                 pkgs/main/osx-arm64::zict-3.0.0-py312hca03da5_0
zipp                 pkgs/main/osx-arm64::zipp-3.17.0-py312hca03da5_0
zlib                 pkgs/main/osx-arm64::zlib-1.2.13-h18a0788_1
zlib-ng              pkgs/main/osx-arm64::zlib-ng-2.0.7-h80987f9_0
zope                 pkgs/main/osx-arm64::zope-1.0-py312hca03da5_1
zope.interface       pkgs/main/osx-arm64::zope.interface-5.4.0-py312h80987f9_0
zstd                 pkgs/main/osx-arm64::zstd-1.5.5-hd90d995_2


Proceed ([y]/n)? y

Downloading and Extracting Packages:

Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate ece5831-2024
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) aishwaryadekhane@Aishwaryas-MacBook-Air ~ % conda activate ece5831-2024
(ece5831-2024) aishwaryadekhane@Aishwaryas-MacBook-Air ~ % conda deactivate
(base) aishwaryadekhane@Aishwaryas-MacBook-Air ~ %
```
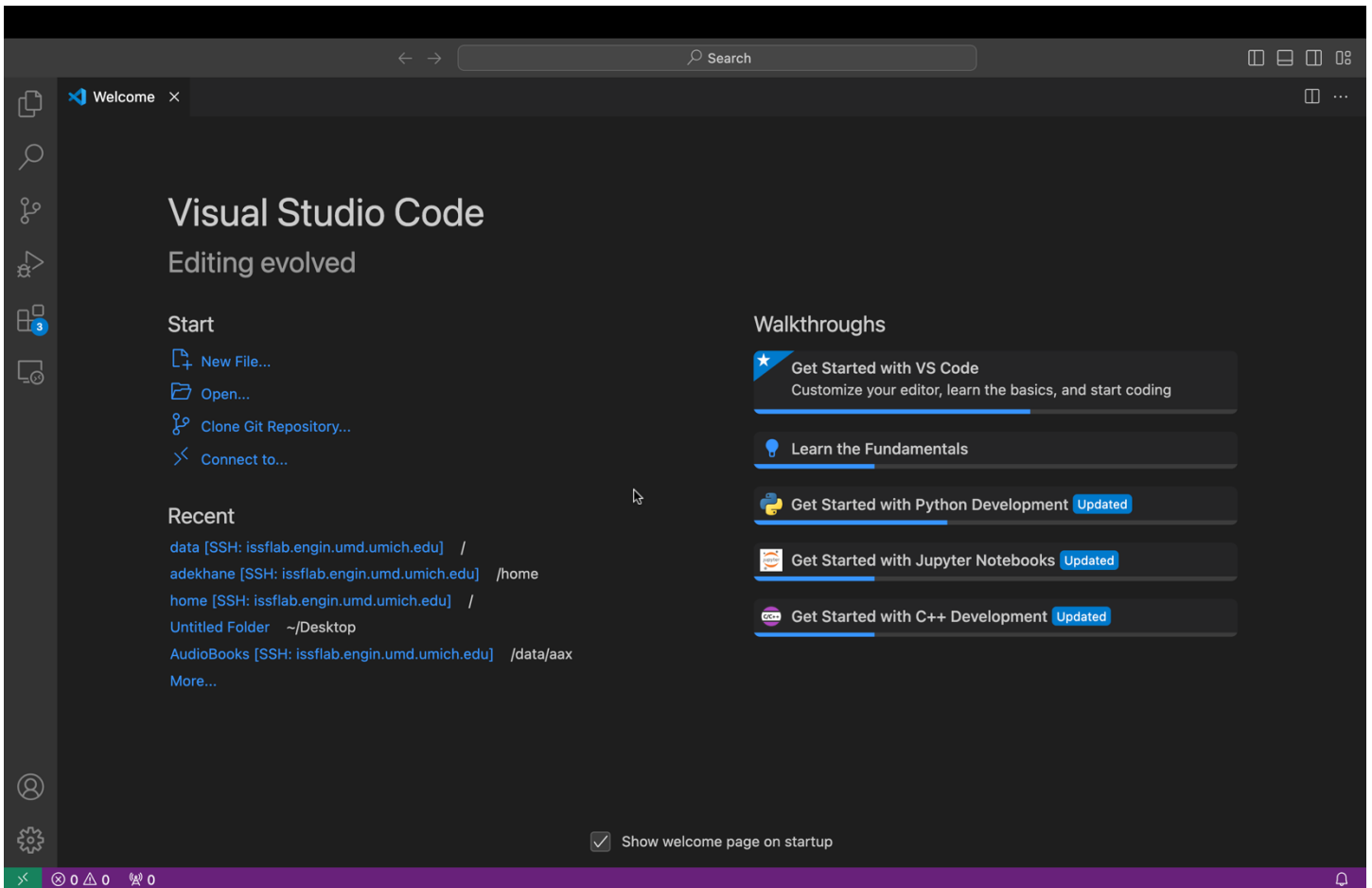
- Install VSCode (install Extensions: Python, Jupyter)
    - Linux and WSL: https://code.visualstudio.com/downloadLinks to an external site.
    - Windows: https://www.pythontutorial.net/getting-started/setup-visual-studio-code-for-python/Links to an external site.

- Complete Introduction to Python
  - https://www.learnpython.org/Links to an external site.
  - Learn the Basics - **learn-python-1.ipynb**

→I have added .ipynb file in zip folder

- Deliverables:
  - make sure that all cells are executed in your ipynb so that I can see the results
  - Files ipynb: **learn-python-1.ipynb**
  - Files py: From Learn the Basics - Modules and Packages: game.py, draw.py, etc

→Kindly find my .py files in zip folder and my code is in .ipynb file