**“Advanced Python Programming for Machine Learning Projects”**

Instructor**:** Ernest Bonat, Ph.D.

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# About the Instructor

1. Currently working for 15 IT Resources as a Consulting Software Engineer and Data Scientist

2. Teaches Computer Science and Business Statistics classes online

3. Organized the Hillsboro Python Machine Learning meetup

(https://www.meetup.com/Hillsboro-Python-Machine-Learning-Meetup/)

4. Worked for Intel as Senior Software Engineer from 2015 to 2016

**1. Object-Oriented and Multithreading/Asynchronous Programming**

GitHub: <https://github.com/ebonat/intel_session_1>

# Class Agenda

* Prerequisites
* Requirements
* Duration
* Cost – FREE!
* Objective – To learn Python best programing practices and become a better Python Software Engineer for Machine Learning
* Sessions

# What you will DO?

* Study, read and practice every week
* Follow Python standard software development guides
* Always try to find the best possible solution of your programming tasks (careful with Google)
* Try to use the latest Python developed libraries and framework if possible (first look at Python Documentation and then Google)
* Participate in program code review with experienced Software Engineers – **very important!**
* Participate in Python meetups meeting (once a month) and conferences (watch conferences videos on YouTube)

# Why Object-Oriented Programming (OOP)?

1. OOP provides a clear modular structure for programs which makes it good for defining abstract datatypes where implementation details are hidden and the unit has a clearly defined interface

2. OOP makes it easy to maintain and modify existing code as new objects can be created with small differences to existing ones

3. OOP provides a good framework for code libraries where supplied software components can be easily adapted and modified by the programmer. This is particularly useful for developing graphical user interfaces

# Python Main Program Definition

import libraries, files, classes

def function1(parameter\_1):

def function2():

def main():

parameter\_1 = “employee\_name”

variable = function1(parameter\_1)

if \_\_name\_\_ == '\_\_main\_\_':

main()

# Python Function Definition

def function\_name(input\_parameters):

try:

some code...

except:

error handing...

finally:

objects memory clean-up…

return

# Python Laptop Setup

1. Install Python Anaconda Distribution Package - 3.7 version (<https://www.anaconda.com/download/>)

2. Open command prompt and type in:

cd C:\Snaps\AppData\Local\Continuum\anaconda3\Scripts (wherever is anaconda script folder)

3. Do the following updates first:

* conda update coda
* conda update anaconda
* conda update library\_name (example: conda update numpy)
* conda install library\_name (for a new library)
* run version.py file and check libraries version

# Look and learn for code examples

Open GitHub link, download the examples, run and learn from them!

# Exercise 1

Design a function that format and return a decimal number with specific number of digits (1, 2, 3, 4 or 5)

# Python Class Object Definition

import libraries

class ClassName(object):

# define consts, fields and properties  
  
 def \_\_init\_\_(self):

some code…

def function\_name(self, parameters)

some code…

# Exercise 2

Base on the files functions.py and utility\_functions.py developer the following files to get the full name of any person.

* name\_superclass
* name\_subclass
* name\_calling