CES1017, Division of Media, Culture, and Design Technology

Programming Fundamentals

Week 1: Course Introduction

Instructor: Eunil Park (pa1324@hanyang.ac.kr)

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Programming

- Why do you know programming?

To solve problems?

To make new products and services?

Because it reflects your thinking and perceptions!

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Goal and Course Info

- Goal
  - Understanding programming basic
  - Hands-on experience on Python programming
  - Writing your own programs!
- Course information
  - No prerequisite knowledge is required
  - Problem based learning (PBL)

python™

01. Overview

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Eunil Park, Ph. D.

- Assistant Professor in Division of Media, Culture, and Design Technology
- Data Scientists for User eXperience

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Engineering & Technology	 SKKU, B. Sc. in Computer Science				SKKU, M. Sc. in Interaction Science (w/ Researcher, SKKU)				 CTO, Two startups			
Entertainment & Contents												
Industry & Management			 Developer, ASTA Inc.,					 KAIST, Ph. D. in Innovation & Tech. Management*				

Research Specialist

*including a period of a visiting researcher in University Jaume-I, Spain

01. Overview

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Course Structure

- Lecture (Monday 11:00 – 13:00 / 15:00 – 17:00)
  - ERICA 클러스터교육지원센터 멀티미디어강의실5 (305호)
  - ERICA 클러스터교육지원센터 멀티미디어강의실3 (302호)
- Lab (Monday 13:00 – 15:00 / 17:00 – 19:00)
  - 제 3공학관 318호 컴퓨터보안실습실 / 제4공학관 PC1실
  - You can leave as soon as you solve all the given problems
  - TA (Teaching Assistant): 전상일, 강지원 조교

I will try my best to sharply start lecture/lab at 11:00 and 15:00, respectively.

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Course Structure

There is
no homework!

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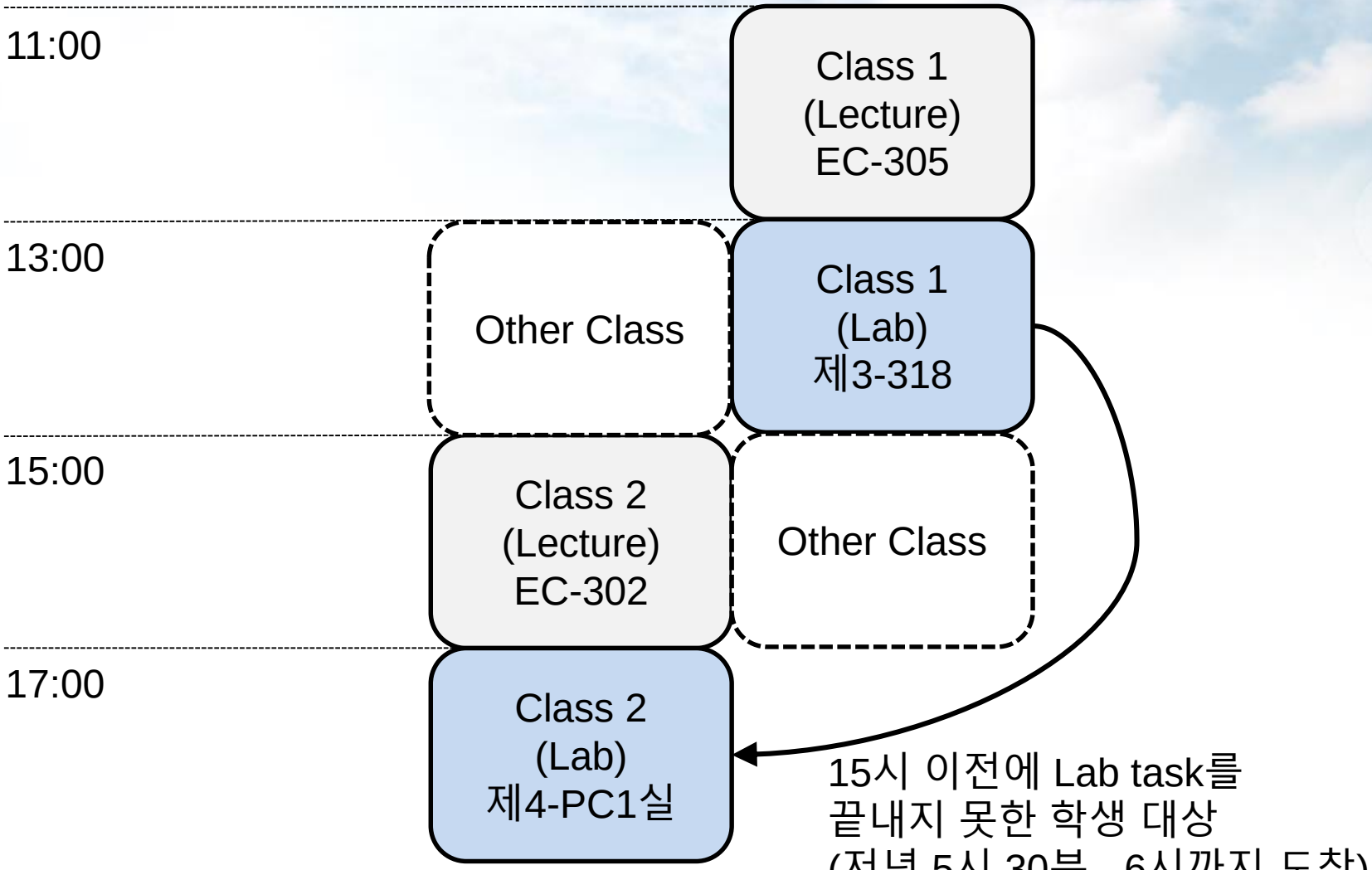
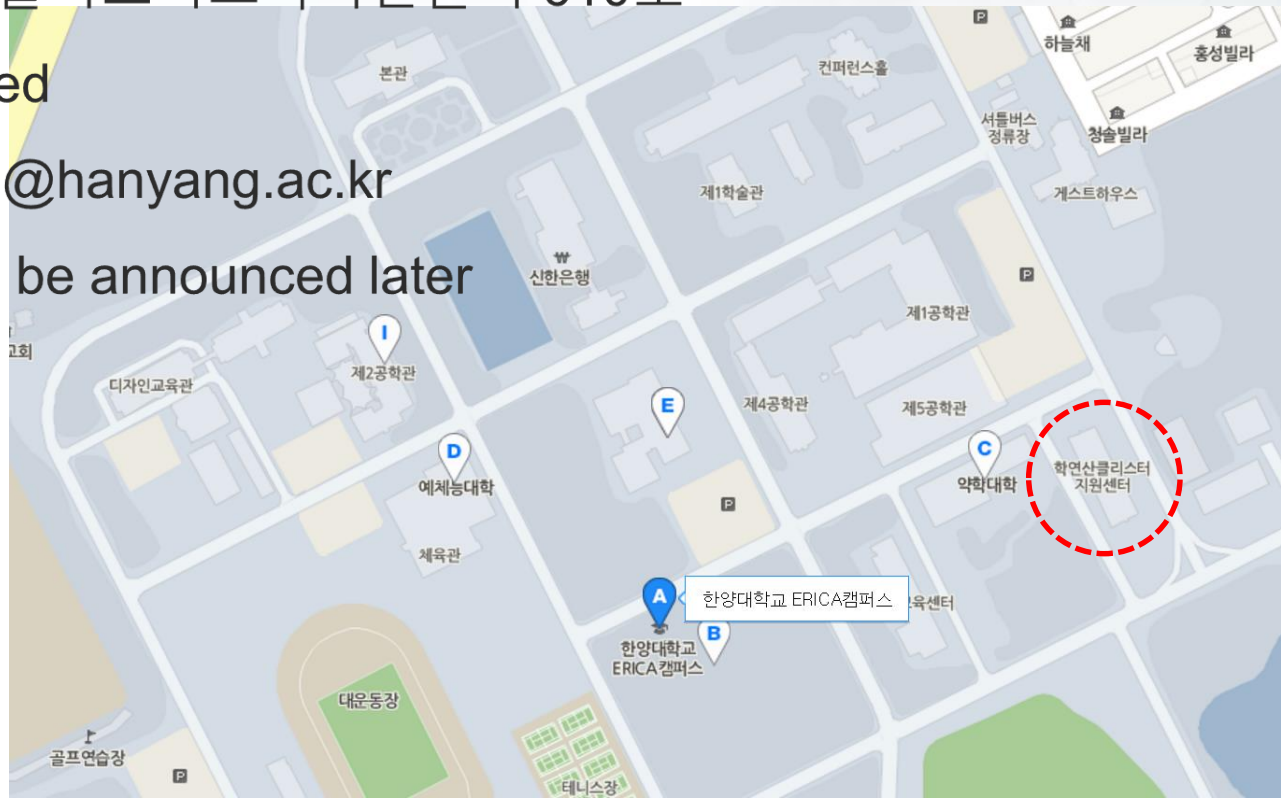
Course Structure



01. Overview

Office Hour

- Office hour information
  - Time: Monday 10:00 am – 11:00 am
  - Location: ERICA 클러스터교육지원센터 610호
  - Appointment-based
    - Email: pa1324@hanyang.ac.kr
  - TA office hour will be announced later



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Grading Policy

- Relative evaluation
  - Scores break (total 100)
    - Lecture attendance and attitude (10)
      - 2/3 attendances of classes are required
    - Lab attendance/exercise (2points * 12days = 24)
    - Project (16)
    - Midterm/Final (50)
      - Live coding exam

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No Cheating

- No submission is better than cheating
  - Zero Tolerance Cheating Policy
  - Definition of cheating in this class
    - **Knowingly** or **unknowingly** participating in the submission of **unoriginal** work for any test (e.g., lab exercise, project)
    - Answer to roll-call instead of another student is also regarded as cheating
  - Penalty
    - Assign a fail grade

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Course schedule

수업일	내용	비고
3/ 5	수업 소개	
3/12	코딩, 첫 걸음	
3/19	함수 만들기	
3/26	안전코딩	Project 팀 구성 (3인)
4/ 2	재귀와 반복 – 셈	
4/ 9	재귀와 반복 – 정렬	
4/16	재귀와 반복 – 검색	
4/23	중간시험 (재귀와 반복 – 동적계획법)	Project 계획서 제출 (5 slides)
4/30	객체지향 프로그래밍 – 객체와 클래스	Project 계획서 발표
5/ 7	No Class	어린이날 대체공휴일
5/14	객체지향 프로그래밍 – MVC 구조기반 설계 및 구현	
5/21	객체지향 프로그래밍 – GUI 활용	
5/28	객체지향 프로그래밍 – 사례 학습	
6/ 4	기말고사 (일정 재공지)	
6/11	프로젝트 시연(일정 재공지)	Project presentation (7mins)

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Project

- Team project guideline
  - Team formation
    - 3 students can be one team
  - Deliverables
    - Project plan (5 pages ppt) by 4/23 night,

      Project presentation (7 mins, strict) on June 11
      - Motivation, problem definition
      - Role of each student
      - Demonstration

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Available Resources

- MacBook Air 대여 신청 사이트
  - http://cse.hanyang.ac.kr/boards/notices/?uid=1281&mod=document
  - 이번 주 안에 신청!!!
- 추천 도서
  - 교양서
    - 이광근 지음, 컴퓨터과학이 여는 세계, 2015
  - 역사서
    - [역서] 월터 아이작슨 지음, 아노베이터 : 창의적인 삶으로 나아간 천재들의 비밀, 오픈하우스, 2015년 2월
    - [원서] Walter Issacson, The Innovators - How a Group of Hackers, Geniuses, and Geeks Created the Digital Revolution, 2014
- Other resources will be available in the Goorm.
  - Linux 기본 명령어
  - 비디오 material

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Class Materials

- We will use Python idle and PyCharm for Lab exercises
- All material files will be uploaded to our course webpage
- All exercise files should be uploaded to our course webpage, after the TAs‘ confirmations

Python programming

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Computer & Program

- Computer = machine solving problems
  - Hardware: physical components (e.g., CPU, memory)
  - Software: instruction to solve a problem
- Program = language for interacting with computer
  - Low-level programming language: machine-understandable/friendly language (e.g., machine codes, assembly)
  - High-level programming language: Human-understandable/friendly language (e.g., C, JAVA, **Python**)
- Algorithm = a sequence of actions to solve a problem

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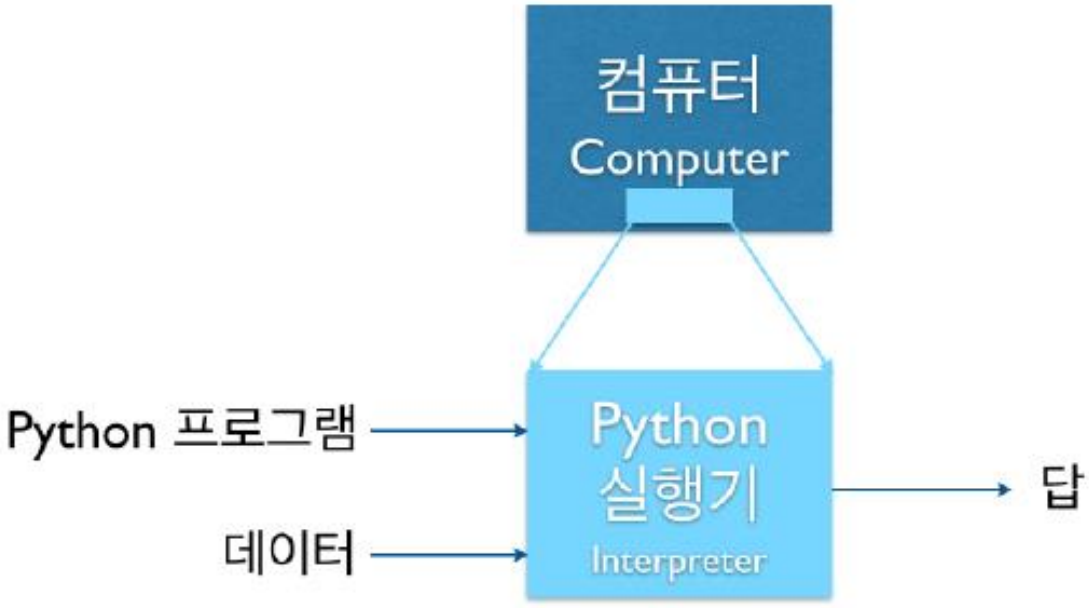
Python Interpreter

- Python Interpreter = 실행기
  - A virtual machine that can understand and run python programs
    - Python 2.x, **Python 3.x (now 3.6)**



Python 프로그램을 이해하고 실행할 수 있는
가상컴퓨터 (Virtual Machine)

02. Python Programming

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Characteristics of Python

- Easy
- Simple
  - Simple is better!
- Free, open source
- Good compatibility
- Extensibility
- Many packages
- Widely used today

Java:

```
// Hello World in Java
class HelloWorld {
    static public void main(String args[]) {
        System.out.println("Hello World!");
} }
```

C++:

```
// Hello World in C++
#include <iostream.h>
Main() {
    cout << "Hello World!" << endl;
    return 0;
}
```

Python:

```
# Hello World in Python
print 'Hello World!'
```

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Python 3.6 Installation

- Python 3.6
  - https://www.python.org/
- Installation packages
  - Anaconda 4.3.0 (Python 3.6)
    - Co-install many good packages
    - https://www.continuum.io/downloads

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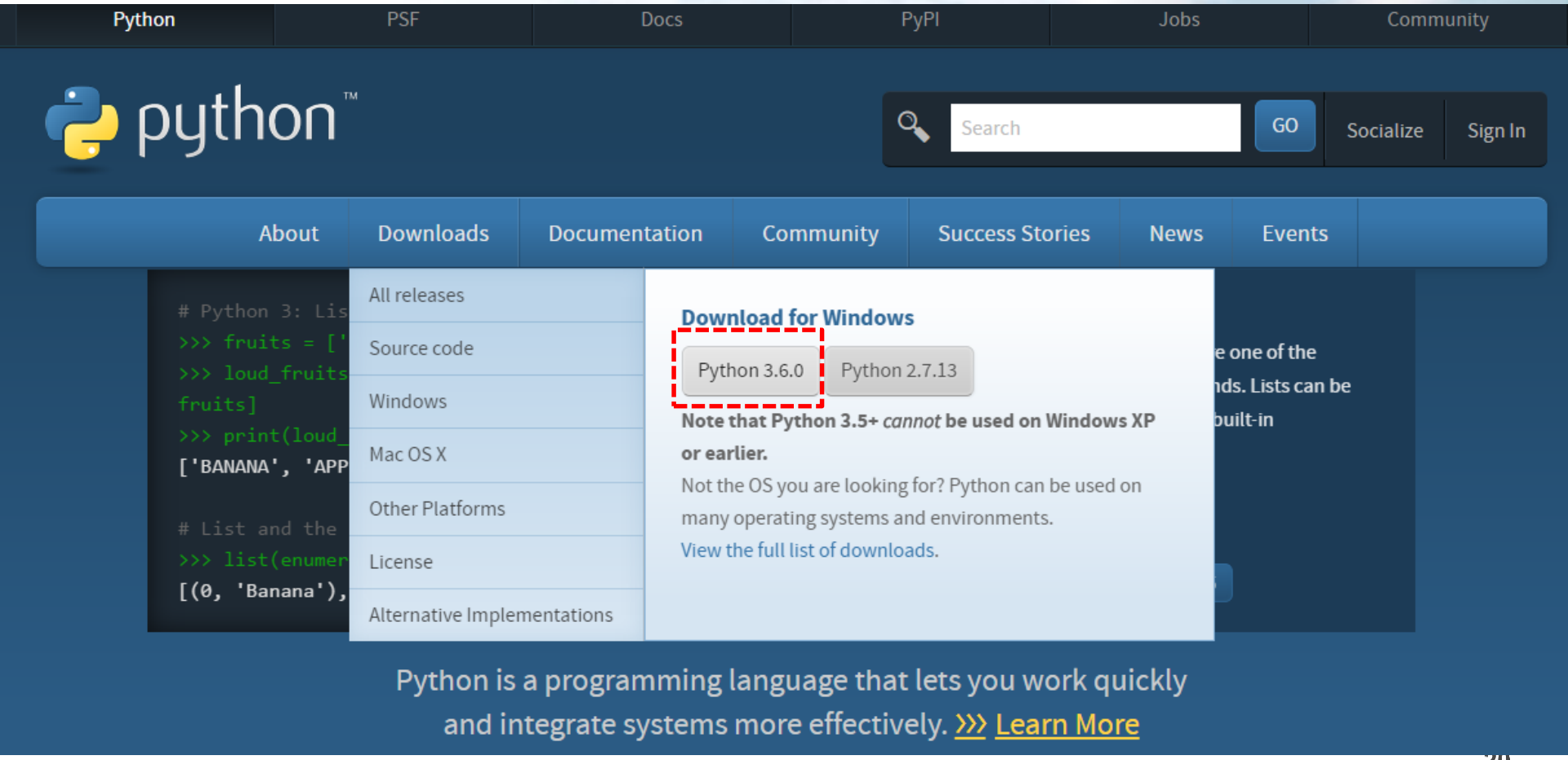

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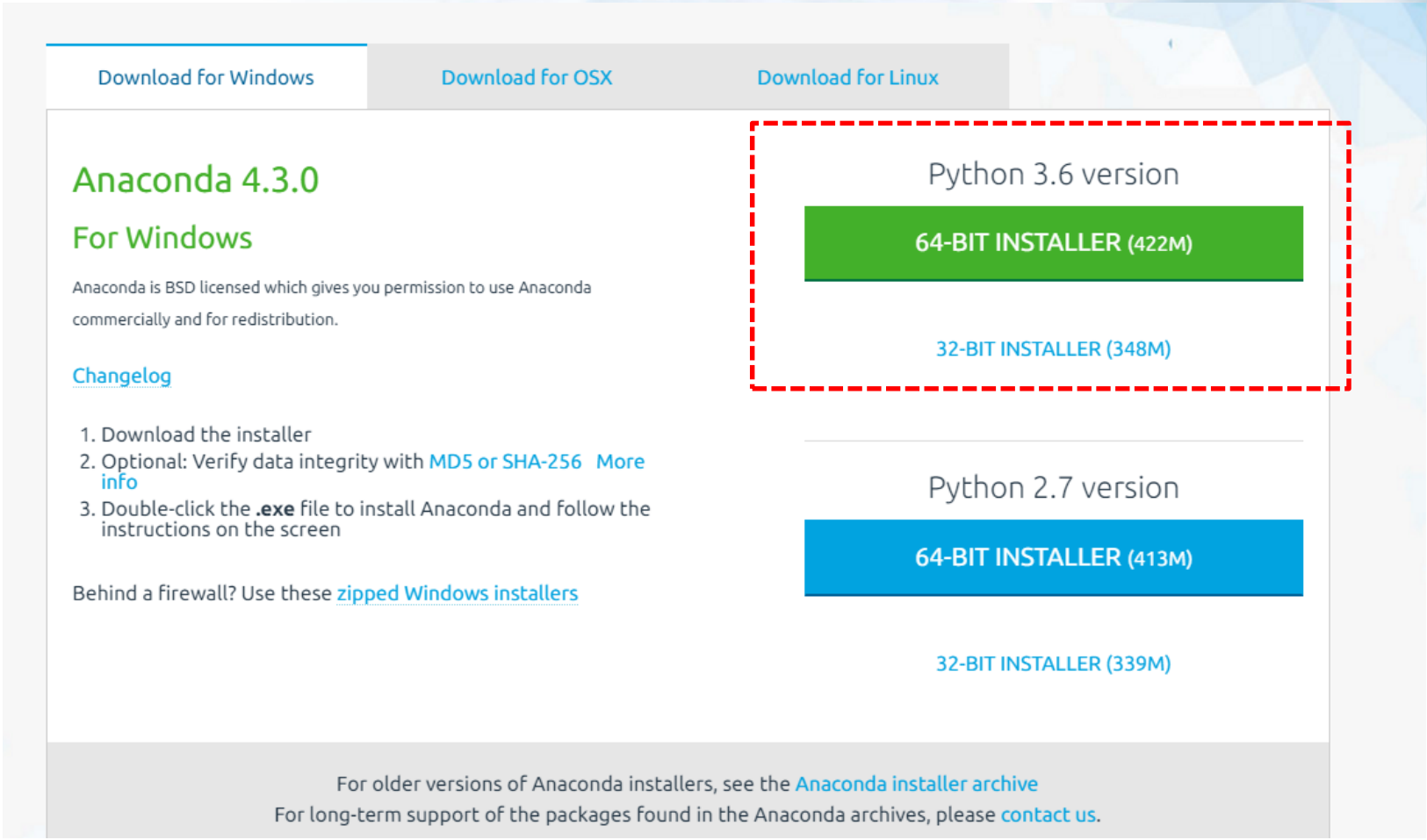

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Python IDE

- Python IDE (Integrated Development Environments)
  - Pycharm, eclipse, pydev, etc…
- There are some comparisons among IDEs
  - e.g., https://wiki.python.org/moin/IntegratedDevelopmentEnvironments
- You can just use text editors and run Python
  - Text editors
    - Vim: (Linux and MacOS has it by default) - http://www.vim.org/
    - Emacs : https://www.gnu.org/software/emacs/
    - Sublime Text : https://www.sublimetext.com/
    - Atom : https://atom.io/

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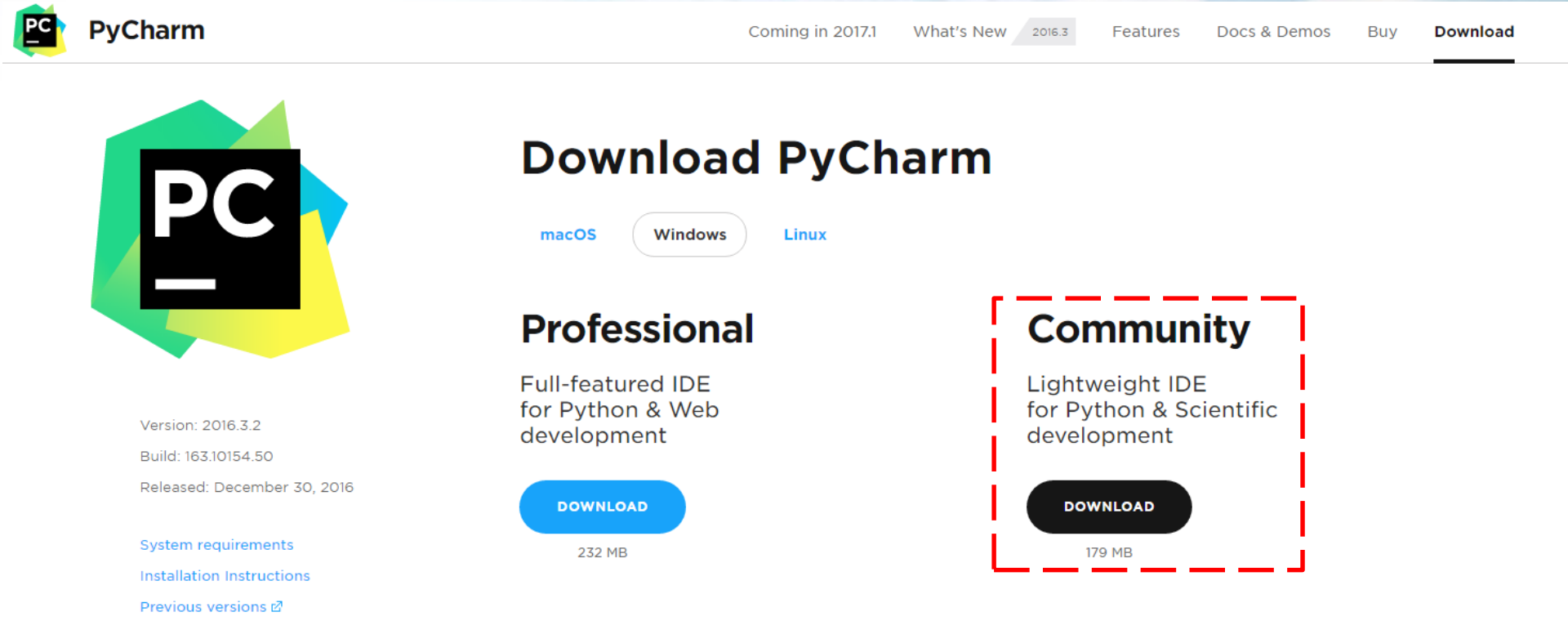
PyCharm

- https://www.jetbrains.com/pycharm



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This week's task

- Create your own python environment.
- Run python command!

Thanks

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