Programming Assignments Overview

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Overview

For the programming assignments, you are going to use MeTA, a C++ data sciences toolkit that supports a variety of tasks such as text retrieval, natural language processing, and machine learning. The main focus in this course will be on how to use and extend the text retrieval methods implemented in MeTA. The assignments assume a very basic understanding of C++ and elementary data structures. That being said, even if your experience is in languages other than C++, you are highly encouraged to go through the assignments, as the focus will be on exploring text retrieval concepts, not on testing your knowledge of the syntax.

The first assignment will be released in Week 2. It will explore the main text processing techniques implemented in MeTA and then guide you through implementing a major component of a search engine. The second assignment will be distributed during Week 3 and will involve a competition where you can freely create and optimize your own search engine. Although the first assignment starts in Week 2, we encourage you to install the toolkit early on.

If you have questions about this installation process, use the **Programming Assignments Forum**. This is a great place to ask questions and also help your fellow classmates.

Software Installation

There are two software prerequisites you must install in order to complete the assignments:

1. MeTA
2. Python 2.7 (used only for uploading your assignment, not for coding)

MeTA officially supports Linux operating systems and Mac OS X 10.6 or higher but does not support Windows. If you have an officially supported operating system and some experience in updating and installing packages, go through the steps in Option 1 below. If your operating system is not supported or you are having problems with installing the packages in **Option 1**, skip to **Option 2** where we provide a virtual image of Ubuntu with MeTA pre-installed.

Option 1 (Supported OS)

Go to the MeTA Setup Guide and follow the steps specific to your operating system. **Note**: There is one extra command you should execute in the installation process that is not mentioned in the MeTA Setup Guide. After executing the following two commands, which clone MeTA from github and change the directory:

```
git clone https://github.com/meta-toolkit/meta.git
cd meta/
```

You should, in the same terminal, execute:

```
git reset --hard v1.3.2
```

This ensures that v1.3.2 of MeTA, the version on which the assignment is based, will be installed. Then proceed with the rest of the installation instructions on the web page.

After installing MeTA, you should make sure that you have Python 2.7 installed. If you have not already installed it, download Python and install it.

Option 2 (Non-supported OS)

In case your operating system is not supported or you prefer not to install the packages needed by MeTA, use this option. We have created a virtual image of Ubuntu with MeTA and Python 2.7 pre-installed. The image is around 2 GB, so plan to install it early on if you have a slow Internet connection. You will need a virtualization software such as VirtualBox to run the virtual image. Below are the installation steps:

1. Install the latest version of VirtualBox.
2. Download the virtual image. You have two options to download the image: either using a BitTorrent (highly recommended) or a direct download:
    1. Torrent
    2. Direct download
3. Open VirtualBox. Click on the **File** menu and select **Import Appliance**. A wizard should open; point it to the location of the image you downloaded in step 2. See a graphical illustration of these steps.

Now, a new image called "retrieve" should show up in the VM list. Click on **retrieve** and start it. Ubuntu should load and might ask you for the username and password. Use "coursera" (without quotes) for both the username and password. After logging in, you should find a folder called **meta** on the desktop. This folder contains all MeTA's files. Installation is complete!

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