ROS Installation

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For Ubuntu 18.04
   1. ROS (Ref: ROS Wiki)

1] Configure your Ubuntu repositories to allow "restricted," "universe," and "multiverse." You can follow the Ubuntu guide for instructions on doing this. This is usually default, but still confirm.

2] While you're at it, **change the Ubuntu software mirror.** This will make life easier later.

Software & Updates → Download from: (dropdown) → Other… → mirror.cse.iitk.ac.in

3] Open a terminal and run:
i) This will update the list of packages Ubuntu looks through for installing.

sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" >
/etc/apt/sources.list.d/ros-latest.list'
(Note the quotes.)

ii) This sets up authentication.

sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key
C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654

iii) Refresh

sudo apt update

iv) Install ROS packages.

sudo apt install ros-melodic-desktop-full

4] The last command above generally throws an error at 99%.
Quick and easy workaround: **Connect to mobile hotspot/ non-IITK network and rerun**

sudo apt install ros-melodic-desktop-full

5] Setup ROS and install dependencies

sudo rosdep init
rosdep update
sudo apt install python-rosinstall python-rosinstall-generator python-wstool build-essential

6] Setup environment

echo "source /opt/ros/melodic/setup.bash" >> ~/.bashrc
source ~/.bashrc

2.   Git - sudo apt-get install git

3.   g++ - sudo apt-get install g++

4.   pip3: *Prerequisites - Python3.x*
     (usually preinstalled on Ubuntu, but check by typing python3 --version in terminal)
     sudo apt-get install python3-pip

5.   VSCode - sudo snap install --classic code

For Mac:

1.   ROS - https://github.com/mikepurvis/ros-install-osx
     Dual boot with Ubuntu is preferred over installing ROS on Mac.

2.   VSCode - https://code.visualstudio.com/docs/setup/mac

3.   g++
     Type g++ on the terminal. It will prompt you to install XCode Developer Tools. Do it.

4.   Git
     Type git --version on the terminal. It will prompt to install everything.

5.   Python3 + pip3 (check if install exists already by python3 --version / pip3 -V)

     1] First, get XCode Command Line Tools. **Run**

     xcode-select --install

     2] Install Homebrew

     ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
     export PATH=/usr/local/bin:/usr/local/sbin:$PATH

     3] Install

     brew install python

For Windows:

1. ROS - Nope.
2. VSCode - https://code.visualstudio.com/download
3. Git - https://desktop.github.com/
4. g++ - Use an online IDE (CodeChef) or a local IDE (TurboC++)
5. Python3 - Use an online IDE (CodeChef) or a local IDE (PyCharm)