



**MALAD KANDIVALI EDUCATION SOCIETY'S
NAGINDAS KHANDWALA COLLEGE OF COMMERCE,
ARTS & MANAGEMENT STUDIES & SHANTABEN NAGINDAS KHANDWALA
COLLEGE OF SCIENCE
MALAD [W], MUMBAI – 64
(AUTONOMOUS)**

(Reaccredited 'A' Grade by NAAC)
(AFFILIATED TO UNIVERSITY OF MUMBAI)
(ISO 9001:2015)

CERTIFICATE

**Name: Mr.NITESH AJAY GUPTA.
Roll No: 111 Programme: BSc IT Semester: II**

This is certified to be a bonafide record of practical works done by the above student in the college laboratory for the course **IT platforms, Tools and Practices** (Course Code:2026UISTP) for the partial fulfillment of Second Semester of BSc IT during the academic year 2020-2021.

The journal work is the original study work that has been duly approved in the year 2020-2021 by the undersigned.

**External Examiner
(Ms.Sweety Garg)**

Subject-In-Charge

Date of Examination:

(College Stamp)

Sr. No.	DATE	TITLE	SIGN
1.	2/2/2021	INTRODUCTION and CONTRIBUTING TO WIKIPEDIA a) What is Wikipedia? b) Steps to Create Account on Wikipedia c) Creating Page on Wikipedia d) Edit your page	
2.	9/2/2021	Creating account, repository on GitHub and Cloning repository in GitHub Page	
3.	16/2/2021	BASIC UNDERSTANDING ON FREE AND OPEN-SOURCE SOFTWARE a) Describe Open-Source Software with Example. b) Describe Free Software with Example c) Difference between Free and Open-Source Software.	
4.	23/2/2021	WRITING EMAIL	
5.	25/2/2021	Using practical examples, describe green computing. List and explain the steps that you take to contribute to green computing	
6.	2/3/2021	WRITING BLOGS	
7.	9/3/2021	Implementing coding practices in Python using PEP8.	
8.	2/3/2021	PRESENTATION: Minimizing Power Usage in Green Computing	

PRACTICAL-1:- Introduction & Contribution to Wikipedia

a) Description of Wikipedia

- The free encyclopedia that anyone can edit.
- Wikipedia's articles allow the users to use links that are related to the pages for additional information.
- It allows you to edit for free. It allows you to put your own article on the site.
- It has 270 languages.
- Wikipedia was founded by Nupedia to produce a free Encyclopedia.
- Depending on the topics, wiki's information can be general or very detailed.



WIKIPEDIA
The Free Encyclopedia

b) Features of Wikipedia

- Wikipedia has many features for the users on the web. Wiki provides pieces of answer from different resources to help the user see it from different perspective.



- Users around the world are able to add or delete an answer to make the best response .Wiki added a new feature called 'VECTOR' which has stylish tabs at the top of each page telling the user whether they are viewing a document or a decision page.
- If someone doesn't understand what the editor says, there are always a few more editors with the same answer but with a different response.

c) Creating account in Wikipedia

❖ Go to www.wikipedia.org and Choose "English".

wikipedia.org

Apps Grail Sube Maps WhatsApp Web Basic features of a... How to create a Wi... How to Edit a Page... How to Create an A... Create a repo - Git...

WIKIPEDIA
The Free Encyclopedia

English 6 245 000+ articles

日本語 1 252 000+ 文章

Deutsch 2 534 000+ Artikel

Español 1 659 000+ artículos

Русский 1 697 000+ статьи

Français 2 296 000+ articles

Italiano 1 672 000+ voci

中文 1 175 000+ 綜目

Polski 1 454 000+ hasł

Português 1 055 000+ artigos

| EN ▾

Read Wikipedia in your language

❖ Click “CREATE ACCOUNT” on the upper right side of your browser.

My Drive - Google Drive X Wikipedia, the free encyclopedia X +

← → C 🌐 en.wikipedia.org/w/index.php?title=Main_Page

Apps Gmail YouTube Maps Translate Welcome to KAMPP!

Not logged in Talk Contributions Create account Log in

Main Page Talk Read View source View history Search Wikipedia

WIKIPEDIA The Free Encyclopedia

Main page Contents Current events Random article About Wikipedia Contact us Donate Contribute Help Learn to edit Community portal Recent changes Upload file Tools What links here Related changes Special pages Permanent link Page information Wikipedia item

Welcome to Wikipedia,
the free encyclopedia that anyone can edit.
5,283,625 articles in English

From today's featured article

 **Kigali** is the capital and largest city of Rwanda. It is near the nation's geographic centre in a region of rolling hills, with a series of valleys and ridges joined by steep slopes. The city has been Rwanda's economic, cultural, and transport hub since it became the capital following independence from Belgium in 1962. It is one of five provinces into which Rwanda was repartitioned in 2006. Kigali is divided into three districts—Gasabo, Kicukiro, and Nyarugenge—which historically had control of significant areas of local governance. Reforms in January 2020 transferred much of the districts' power to the city-wide council. The city also hosts the main residence and offices of the president of Rwanda and most government ministries. It was founded in 1907 as the headquarters of the German colonial resident. It grew slowly during the following decades, but since the Rwandan Civil War and the genocide it has experienced rapid population growth, with much of the city rebuilt. The largest contributor to Kigali's GDP is the service sector. (Full article...)

Recently featured: Yugoslav destroyer Zagreb • Persuasion (1995 film) • Aftermath (Rolling Stones album)

In the news

- Guillermo Lasso (pictured) is elected President of Ecuador.
- At the British Academy Film Awards, Nomadland wins four awards, including Best Film.
- In golf, Hideki Matsuyama wins the Masters Tournament.
- In horse racing, Minella Times wins the Grand National, with Rachael Blackmore becoming the first female jockey to win in the race's 162-year history.
- The volcano La Soufrière erupts in Saint Vincent, forcing the evacuation of around 20,000 people.

Ongoing: COVID-19 pandemic • Myanmar protests
Recent deaths: Charles Geschke • Vartan Gregorian • Helen McCrory • Andrew Peacock • Michel Louvain • Vivek

Nominate an article

On this day

Archive • By email • More featured articles

10% 40% ENG 18-04-2021

My Drive - Google Drive Create account - Wikipedia

Once an account has been created, it is essentially impossible to hide the original username should you later want to change it for privacy reasons.

Username (help me choose)
Nitesh14581

Password

It is recommended to use a unique password that you are not using on any other website.

Confirm password

Email address (optional)
guptartesh14581@gmail.com

To protect the wiki against automated account creation, we kindly ask you to enter the words that appear below in the box (more info):
CAPTCHA Security check

angeltiros

angeltiros

Wikipedia is made by people like you.

1,013,750,600 edits

6,283,680 articles

140,946 recent contributors

Type here to search

Hello Nitesh14581,

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Special:ConfirmEmail/6f1fc9b13
87c4c1f90722096e33ed0d0](https://en.wikipedia.org/wiki/Special:ConfirmEmail/6f1fc9b1387c4c1f90722096e33ed0d0)

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Thanks, and once again, welcome!

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b1387c4c1f90722096e33ed0d0](https://en.wikipedia.org/wiki/Special:InvalidateEmail/6f1fc9b1387c4c1f90722096e33ed0d0)

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Wikipedia email address confirmation [Inbox](#)

Wikipedia <wiki@wikimedia.org> [Unsubscribe](#)

1:56 PM (14 minutes ago)

to me

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<https://en.wikipedia.org/wiki/Special:InvalidateEmail/3acdffbe7c986dd1fbe73766a5670136>



someone leaves you a message

mail, visit your preferences at <http://en.wikipedia.org/wiki/Special:Preferences>

[Reply](#)[Forward](#)



WIKIPEDIA
The Free Encyclopedia

Special page

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Main page

Contents

Current events

Random article

About Wikipedia

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Help

Learn to edit

Community portal

Recent changes

Upload file

Tools

Special pages

Printable version

Languages



❖ To log in the future, return to the main page and click “Log in” in the upper right corner of your browser.

The screenshot shows a web browser window with the URL en.wikipedia.org/w/index.php?title=Special:UserLogout&returnto=Special%3AConfirmEmail%2F8acdffbe7c986dd11be73766a5670136. The page title is "Special page". The main content area displays the "Log out" message: "You are now logged out. This device may be used to browse and edit Wikipedia without a username, or for another user to log in. Note that some pages may be displayed as if you were still logged in; this can be fixed by clearing your browser cache." Below this message are links to "Return to Special:ConfirmEmail/8acdffbe7c986dd11be73766a5670136". The browser's address bar and various tabs are visible at the top, along with the Wikipedia logo and navigation links on the left side of the page.

My Drive - Google Drive

W Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/Main_Page

Apps Gmail YouTube Maps Translate Welcome to XAMPP

Not logged in Talk Contributions Create account Log in

Main Page Talk Read View source View history Search Wikipedia

WIKIPEDIA The Free Encyclopedia

Main page Contents Current events Random article About Wikipedia Contact us Donate Contribute Help Learn to edit Community portal Recent changes Upload file Tools What links here Related changes Special pages Permanent link Page information Watchlist item

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Recently featured: Yugoslav destroyer Zagreb · Persuasion (1995 film) · Aftermath (Rolling Stones album)

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Ongoing: COVID-19 pandemic · Myanmar protests
Recent deaths: Charles Geschke · Vartan Gregorian · Helen McCrory · Andrew Peacock · Michel Louvain · Vivek

Nominate an article

On this day

https://en.wikipedia.org/w/index.php?title=Main_Page&action=edit

Archive · Pur email · More featured articles

14:53 18-04-2021

do.

Content that violates any copyrights will be deleted. Encyclopedic content must be verifiable. Any work submitted to Wikipedia can be edited, used, and redistributed—by anyone—subject to certain terms and conditions.

Subject/headline

Semi-protected edit request on 15 February 2021

B I Advanced > Special characters > Help > Cite

`{{edit semi-protected|Christmas|answered=no}}
 {{subst:trim|1=}
 <!-- State UNAMBIGUOUSLY your suggested changes below this line, preferably in a "change X to Y" format. Other editors need to know what to or remove. Blank edit requests will be declined. -->`

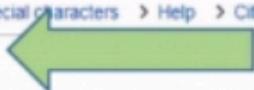
<!-- Write your request ABOVE this line and do not remove the tildes and curly brackets below. -->
 }} ~~~~~

Insert Sign your posts on talk pages: ~~~~ Cite your sources: <ref></ref>

Watch this page Permanent

By publishing changes, you agree to the [Terms of Use](#), and you irrevocably agree to release your contribution under the CC BY-SA 3.0 License and the GFDL. You agree that a hyperlink or URL is sufficient attribution under the Creative Commons license.

Publish changes Show preview Show changes Cancel



❖ Click on Show preview. This allows you to view how the changes will appear on the page.

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B I Advanced > Special characters > Help > Cite

{{edit semi-protected|Christmas|answered=no}}

{{subst:trim|1=}}

<!-- State UNAMBIGUOUSLY your suggested changes below this line, preferably in a "change X to Y" format. Other editors need to know what to or remove. Blank edit requests will be declined. -->

<!-- Write your request ABOVE this line and do not remove the tildes and curly brackets below. -->
}} answer



❖ Click Publish changes.

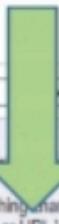
{{edit semi-protected|Christmas|answered=no}}

{{subst:trim|1=}}

<!-- State UNAMBIGUOUSLY your suggested changes below this line, preferably in a "change X to Y" format. Other editors need to know what to add or remove. Blank edit requests will be declined. -->

<!-- Write your request ABOVE this line and do not remove the tildes and curly brackets below. -->

}} ~~~~~



Insert - — * * * ~ ≠ ≤ ≥ ± − × + ← → § Sign your posts on talk pages: ~~~~~ Cite your sources: <ref></ref>

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Publish changes Show preview Show changes Cancel

-
- » Templates used in this preview ([help](#))
 - » This page is a member of 6 hidden categories ([help](#))

Practical 2:-Creating account,repository on Github and cloning repository on Github.

a) Creating an account on Github

- ❖ Go to <http://github.com/join> in a web browser and "Sign up" for creating a new account.

Apps

Gmail

YouTube

Maps

WhatsApp Web

Basic features of a...

How to create a Wi...

How to Edit a Page...

How to Create an A...

Create a repo - Gi...



Why GitHub

Team

Enterprise

Explore

Marketplace

Pricing

Search GitHub

Sign in

Sign up

Where the world builds software

Millions of developers and companies build, ship, and maintain their software on GitHub—the largest and most advanced development platform in the world.

Email address

Sign up for GitHub

56+ million
Developers

3+ million
Organizations

100+ million
Repositories

72%
Fortune 500



❖ Enter your personal details.



Join GitHub

Create your account

Username *

Email address *

Password *

Make sure it's at least 15 characters OR at least 8 characters including a number and a lowercase letter.
[Learn more.](#)

Email preferences

Send me occasional product updates, announcements, and offers.

Verify your account

Please solve this puzzle so we
know you are a real person

Verify

Join GitHub

Username *

Nitesh145810



Email address *

guptaritesh145081@gmail.com



Password *

.....

Make sure it's at least 15 characters OR **at least 8 characters including a number and a lowercase letter.** [Learn more.](#)

Email preferences

- Send me occasional product updates, announcements, and offers.

Verify your account



Create account

rit14581/IT-Tools

github.com/rit14581/IT-Tools

Apps Gmail YouTube Maps Translate Welcome to XAMPP

Search or jump to... Pull requests Issues Marketplace Explore

rit14581 / IT-Tools

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main · 1 branch · 0 tags

Go to file Add file · Code

rit14581 Add files via upload 4d1e21f 10 days ago 2 commits

111_FYIT_nitesh_IT-tools assign. 1.pdf Add files via upload 10 days ago

README.md Initial commit 10 days ago

README.md

IT-Tools

About

No description, website, or topics provided.

Readme

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

Type here to search

15:18 18-04-2021

rit14581/IT-Tools

github.com/rit14581/IT-Tools

Apps Gmail YouTube Maps Translate Welcome to XAMPP

Search or jump to... Pull requests Issues Marketplace Explore

Unwatch 1 Star 0 Fork 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags Go to file Add file Code

rit14581 Add files via upload 6 hours ago 7 commits

111_FYIT_nitesh_IT-tools assign. 1.pdf Add files via upload 10 days ago

FYIT_Group6_PEP8.pptx Add files via upload 6 hours ago

README.md Initial commit 10 days ago

practical 3 it tools.pdf Add files via upload 6 hours ago

practical 4 it tools.pdf Add files via upload 6 hours ago

practical 5 it tools (1).pdf Add files via upload 6 hours ago

practical 6 it tools.pdf Add files via upload 6 hours ago

README.md

Type here to search

About

No description, website, or topics provided.

Readme

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

20:54 18-04-2021 ENG

Create your first project

Ready to start building? Create a repository for a new idea or bring over an existing repository to keep contributing to it.

[Create repository](#)

[Import repository](#)

Working with a team?

GitHub is built for collaboration. Set up an organization to improve the way your team works together, and get access to more features.

[Create an organization](#)

Learn Git and GitHub without any code!

Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.

[Read the guide](#) [Start a project](#)

Projects to get started with [See all](#)

thedaviddias / Front-End-Checklist Star The perfect Front-End Checklist for modern websites and meticulous developers javascript css html 47k 4.7k	datasciencemasters / go Star The Open Source Data Science Masters 17.3k 3.7k
MunGell / awesome-for-beginners Star A curated list of awesome projects for beginners	mhinz / vim-galore Star A collection of Vim configurations and plugins

- ❖ Give name to your repository and choose one from private or public. Then click on create repository.

22

The screenshot shows the GitHub homepage. At the top right, a context menu is open with options: New repository, Import repository, New gist, New organization, and New project. A large green arrow points upwards from the bottom right towards the 'New repository' option. On the left, there are sections for creating a repository, working with a team, and projects to get started with. The central area features a guide titled 'Learn Git and GitHub without any code!' with buttons to 'Read the guide' and 'Start a project'. Below this are repository suggestions like 'Front-End-Checklist' and 'awesome-for-beginners'.

❖ Fill the repository name and make it to public.
Then click to Create repository.

❖ After uploading click on commit changes

The screenshot shows a GitHub repository page for 'gloryfyit95/IT-TOOLS/upload/main'. A file named 'github.pdf' is listed. Below it, a 'Commit changes' dialog box is open. The dialog contains fields for 'Add files via upload' and 'Add an optional extended description...', and two radio button options: one selected ('Commit directly to the main branch.') and one unselected ('Create a new branch for this commit and start a pull request.'). At the bottom are 'Commit changes' and 'Cancel' buttons. A large green arrow points from the bottom left towards the 'Commit changes' button.

❖ After that click on code and copy the link

PRACTICAL 3

BASIC UNDERSTANDING ON FREE AND OPEN-SOURCE SOFTWARE

1. Describe Open Source Software with Example.

⑦ Open-source software (OSS) is any computer software that's distributed with its source code available for modification. That means it usually includes a license for programmers to change the software in any way they choose: They can fix bugs, improve functions, or adapt the software to suit their own needs

While its lack of cost is a key advantage, OSS has several additional benefits:

- Its quality can be easily and greatly improved when its source code is passed around, tested, and fixed.
- It offers a valuable learning opportunity for programmers. They can apply skills to the most popular programs available today.
- It can be more secure than proprietary software because bugs are identified and fixed quickly.
- Since it is in the public domain, and constantly subject to updates, there is little chance it can become unavailable or quickly outmoded—an important plus for long-term projects.

Open-source technologies helped establish much of the internet. Furthermore, many of the programs in use every day are based on open-source technologies. Cases in point: Android OS and Apple's OS X are based on the kernel and Unix/BSD open-source technologies, respectively.

Other popular open-source software is:

- Mozilla's Firefox web browser
- Thunderbird email client
- PHP scripting language
- Python programming language
- Apache HTTP web server

2. Describe Free Software with Example

- Free software is software that can be freely used, modified, and redistributed with only one restriction: any redistributed version of the software must be distributed with the original terms of free use, modification, and distribution (known as copyleft). The definition of free software is stipulated as part of the GNU Project and by the Free Software Foundation. Free software may be packaged and distributed for a fee; the "free" refers to the ability to reuse it, modified or unmodified, as part of another software package. As part of the ability to modify, users of free software may also have access to and study the source code.

Free software is easily confused with freeware, term describing software that can be freely downloaded and used but which may contain restrictions for modification and reuse.

Best Free software at a glance:

1. LibreOffice
2. VLC Media Player
3. GIMP
4. Shortcut
5. Brave
6. Audacity
7. KeePass
8. Thunderbird
9. FileZilla
10. Linux

3. Difference between Free and Open Source Software.

→ **Free Software:**

"Free software" means software that respects users' freedom and community. Roughly, it means that the users have the freedom to run, copy, distribute, study, change and improve the software. The term "free software" is sometimes misunderstood—it has nothing to do with price. It is about freedom.

Open-Source Software:

Open Source Software is something which you can modify as per your needs, share with others without any licensing violation burden. When we say Open Source, source code of software is available publicly with Open Source licenses like GNU (GPL) which allows you to edit source code and distribute it. Read these licenses and you will realize that these licenses are created to help us.

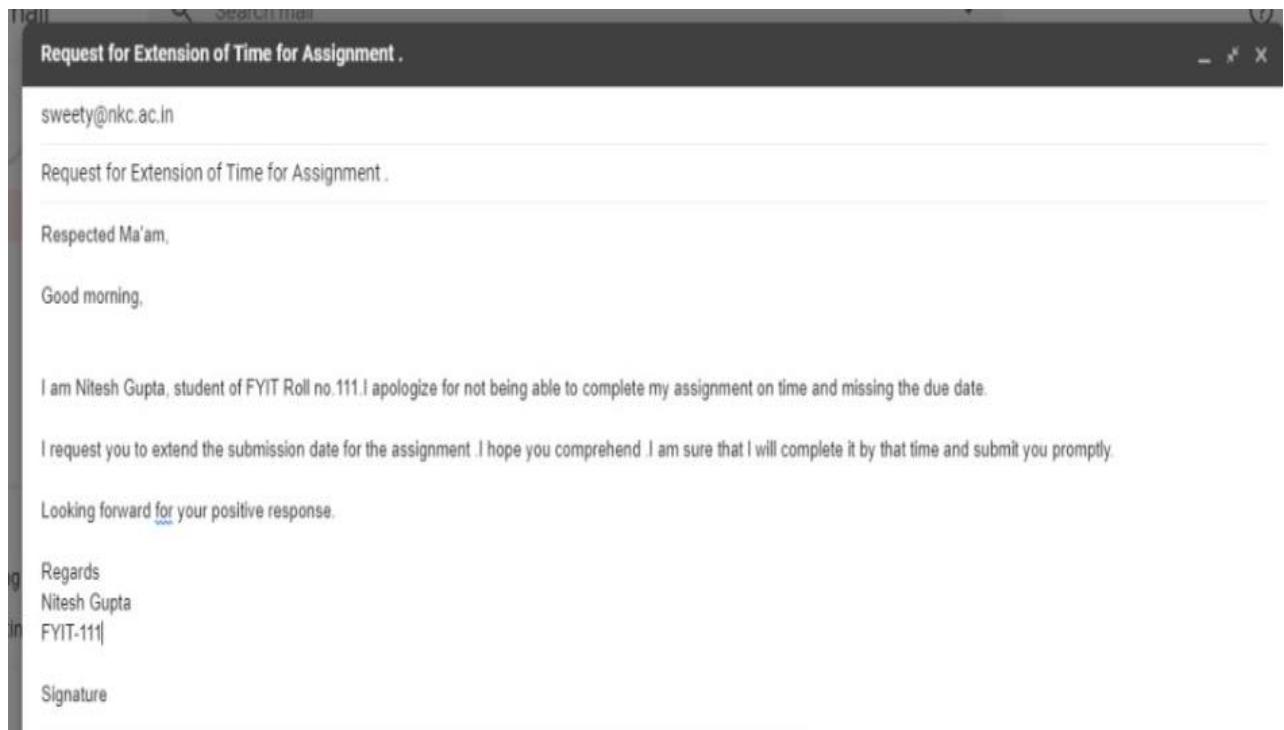
- Coined by the development environments around software produced by open collaboration of software developers on the internet.
- Later specified by the Open Source Initiative (OSI).
- It does not explicitly state ethical values, besides those directly associated to software development.

Sr.No.	Free Software	Open-Source Software
1)	Software is an important part of people's lives.	Software is just software. There are no ethics associated directly to it.
2)	Software freedom translates to social freedom.	Ethics are to be associated to the people not to the software.
3)	Freedom is a value that is more important than any economic advantage.	Freedom is not an absolute concept. Freedom should be allowed, not imposed.
4)	Examples: The Free Software Directory maintains a large database of free-software packages. Some of the best-known examples include the Linux kernel, the BSD and Linux operating systems, the GNU Compiler Collection and C Library; the MYSQL relational database; the Apache web server; and the Send mail transport agent.	Examples: Prime examples of open-sources products are the Apache HTTP Server, the e-commerce platform ecommerce, internet browsers Mozilla Firefox and Chromium (the project where the vast majority of development of the freeware Google Chrome is done) and the full office suite LibreOffice.

PRACTICAL-4

Name: -Nitesh Gupta

Class: - FYIT 111



PRACTICAL-5

Describe green computing. List and explain the steps that you take to contribute to green computing.

Green computing is the environmentally responsible and eco-friendly use of computers and their resources. In broader terms, it is also defined as the study of designing, engineering, manufacturing, using and disposing of computing devices in a way that reduces their environmental impact.

To promote green computing concepts at all possible levels, the following four approaches are employed:

- Green use: Minimizing the electricity consumption of computers and their peripheral devices and using them in an eco-friendly manner.
- Green disposal: repurposing existing equipment or appropriately disposing of or recycling unwanted electronic equipment.
- Green design: Designing energy-efficient computers, server, printers, projectors and other digital devices.
- Green manufacturing: Minimizing waste during the manufacture of computers and other subsystem to reduce the environmental impact of these activities.

Steps to contribute green computing:

- 1) Power down when not in use: Seems simple but many of us leave computers powered up for a long time when not in use. A large amount of power is being wasted, so if you're not using the computer press the power button to shut it off until needed. This can be done if the computer is working on something. Screensavers do not save power. Same goes for computer, you don't have to shut it down completely if you don't want to.

reboot, just use sleep or hibernation mode. This will help save energy and keep the system to its current state when you need it again.

- 2) Use the power saving features: All computers include power saving options. Using these features you can command the computer to do various energy-saving tasks automatically, including shutting off unused hard disks, powering off a monitor after a given time or even placing the computer into sleep mode when not in use. This is very useful on laptops to help preserve battery life.
- 3) Purchase energy saving hardware: If you don't need super-fast computing power then look out for energy efficient components when buying a new computer, such as green hard drives and low-energy processors. While performance is slower they can use remarkably less power .Purchasing an energy saving power supply unit for a desktop PC can help the environment and save money, they're often quickly too.
- 4) Use a laptop instead of desktop: Laptops are much better for the environment than desktop computers as they have components which require less power. If you don't need a desktop computer consider buying a laptop instead, or if you have both use the laptop as much as possible before considering the desktop.
- 5) Recycle responsibly: Computer hardware is filled with different material which can be hazardous to the environment so make sure you dispose of old components effectively. Don't just throw broken technology in the bin, take the time to trace local recycling organization. There should be companies which can remove the metals which may fix or furnish items.You should check with your local

authorities to find out what facilities they offer for safe disposal of old computing parts.

RELIGIOUS PLACES



March 24, 2021

GOLDEN TEMPLE

The Golden temple is located in the holy city of the Sikhs, Amritsar. The Golden temple is famous for its full golden dome, it is one of the most sacred pilgrim spots for Sikhs. The Mandir is built on a 67-ft square of marble and is a two storied structure.



KASHI VISHWANATH TEMPLE

It is located in Vishwanath Gali of Varanasi, Uttar Pradesh in India. The Temple stands on the western bank of the holy river Ganga, and is one of the twelve Jyotirlingas, or Jyotirlingams, the holiest of Shiva Temples



The Ram Mandir is an under-construction Hindu temple in Ayodhya, Uttar Pradesh, India, at the site of Ram Janmabhoomi, believed to be the birthplace of the Hindu god Rama. The temple construction will be undertaken by Shri Ram Janmabhoomi Teerth Kshetra.



THANK YOU!



Priya Gupta 24 March 2021 at 10:13

Good

PEP 8 STYLE GUIDE

Practical no.7

GROUP No. 8

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PEP8

PEP8 is a style guide for python code.

- PEP stands for Python Enhancement Proposal, and they describe and document the way python language evolves.
- It was written in 2001 by Guido van Rossum, Barry Warsaw, and Nick Coghlan.
- A PEP is a document that describes new features proposed for Python and documents aspects of Python, like design and style, for the community.
- They also provide a reference point (and a standard) for the pythonic way to write code

→ It also has a lot of programming recommendations and useful tips on various topics, which aim to improve readability and reliability of your code.

→ PEP8 features:-

1. Plugin architecture: Adding new checks is easy.
2. Parseable output: Jump to error location in your editor.
3. Small: Just one Python file, requires only stdlib. You can use just the pep8.py file for this purpose.

Naming Conventions

Naming Conventions:

1.Variable

2.Function

3.Class

4.Method

5.Constant

6.Module

7.Package

\

Variable: A variable is created the moment you first assign a value to it

```
#Wrong Way to Initialize or assigning a name to a variable  
#Name Should not start with a number  
#Name should be intuitive and not too common.
```

```
1variable=2 #Variable name started with a number (Wrong Way)  
print(1variable)
```

```
File "<ipython-input-1-d1860915d72c>", line 5  
 1variable=2  
          ^
```

```
SyntaxError: invalid syntax
```

```
#Wrong Way to Initialize or assigning a name to a variable  
#Name Should not start with a number  
#Name should be intuitive and not too common.
```

```
x='Bhavana' #Variable name is too common and not intuitive (Not a Good Way)  
print(x)
```

```
Bhavana
```

```
#Wrong Way to Initialize or assigning a name to a variable  
#Name Should not start with a number  
#Name should be intuitive and not too common.
```

```
first_name='Bhavana' #Variable name is self-explanatory and has a readability, and it is separated using underscores  
print(x)
```

```
Bhavana
```

Function: A function is a block of code which only runs when it is called.

```
#Wrong Way to Initialize or assigning a name to a function
#Name Should not start with a number
#Name should be intuitive and not too common.

def ^function(): #Function name should not be started with a Number or special characters
    print("Not a correct way to represent a function name")

^function()

File "<ipython-input-5-5f84f1733e34>", line 5
  def ^function():
  ^
SyntaxError: invalid syntax
```

```
#Wrong Way to Initialize or assigning a name to a function
#Name Should not start with a number
#Name should be intuitive and not too common.

def x(): #Function name is too generic and it can create a confusion in enterprise programming
    print("Function Name is too generic, you can use it but it is not recommended as it is not self-explanatory and intuitive")

x()

Function Name is too generic, you can use it but it is not recommended as it is not self-explanatory and intuitive
```

```
#Wrong Way to Initialize or assigning a name to a function
#Name Should not start with a number
#Name should be intuitive and not too common.

def display_function(): #Function name is self explanatory
    print("Function Name is self explanatory, name can be more intuitive in case of proper functionality")

display_function()

Function Name is self explanatory, name can be more intuitive in case of proper functionality
```

Class: class definitions begin with a class keyword.

```
#Wrong Way to Initialize or assigning a name to a class
#Name Should not start with a number
#Name should be intuitive and not too common.

1class x:
def display_function(): #Function name is self explanatory
    print("Function Name is self explanatory, name can be more intuitive in case of proper functionality")

display_function()
```

```
File "<ipython-input-9-0547726683a1>", line 5
  1class x:
  ^
SyntaxError: invalid syntax
```

```
class Employee:
    def accept(self):
        print("Enter Id:")
        self.Id=int(input())
        print("Enter Name:")
        self.name= str(input())
    def display(self):
        print("ID: %d \nName: %s"%(self.Id,self.name))

emp=Employee()
emp.accept()
emp.display()
```

```
Enter Id:
66
Enter Name:
bhavana
ID: 66
Name: bhavana
```

Method: A Python method is a label that you can call on an object; it is a piece of code to execute on that object.

```
#Wrong Way to Initialize or assigning a name to a method
#Name Should not start with a number
#Name should be intuitive and not too common.
```

```
1class Method:
    def display(self):
        print("This is method function. ")

c = Method()
c.display()
```

```
File "<ipython-input-26-3e88b14da450>", line 6
 1class Method:
^
```

```
SyntaxError: invalid syntax
```

```
#Wrong Way to Initialize or assigning a name to a class
#Name Should not start with a number
#Name should be intuitive and not too common
```

```
class Product:
    def __init__(self):
        self.prod_id = input("Enter the Product ID: ")
        self.prod_name = input("Enter the Product Name: ")
        self.total_no = int(input("Enter the total no. of Items Purchase: "))
        self.unit_price=float(input("Enter the unit Price: "))
    def display(self):
        print("Total Price of %d units of Product %s is: %.2f" %(self.total_no,self.prod_name,self.total_no*self.unit_price))

p1=Product()
p1.display()
```

```
Enter the Product ID: A20134
Enter the Product Name: Choclate
Enter the total no. of Items Purchase: 7
Enter the unit Price: 75.50
Total Price of 7 units of Product Choclate is: 528.50
```

Constant: A constant is a type of variable whose value cannot be changed.

```
pi = 3.14          #pi is constant
radius=5
print("Area of circle: %0.2f" %(pi*radius*radius))
```

Area of circle: 78.50

Modules: Modules refer to a file containing Python statements and definitions.

```
# to import standard module math

import math
print("The value of pi is", math.pi)
```

The value of pi is 3.141592653589793

Packages: A package is basically a directory with Python files and a file with the name `__init__.py`



Code layout

WITHOUT SPACE

These conventions lead to text that you can read easily, like this:

This would become increasingly hard to read. For example have a look at the example below

```
howwillitlookifwedonothavethespace
```

WITH SPACE

Now here, we will use space and write it in regular English language, so it will be very easy to read.

How will it look if we do not have the space

Maximum line length and line breaking

PEP 8 guidelines suggest that each line of code (as well as comment lines) should be 79 characters wide or less. This is a common standard that is also used in other languages including R.

CORRECT

```
# Perform some math
a = 1+2
b = 3+4
c = a+b

# Read in and plot some
precip_timeseries = pd.readcsv("precip-2019.csv")
precip_timeseries.plot()
```

#WRONG

```
#Perform some math and do some things
a=1+2
b=3+4
c=a+b
data=pd.readcsv("precip-2019.csv")
data.plot()
```

Should a line break Before or After a Binary Operator

Here, it's harder to see which variable is being added and which is subtracted.

WRONG

```
Total = (Number 1+
          Number 2-
          Number 3)
```

You can immediately see which variable is being added or subtracted, as the operator is right next to the variable being operated on.

In the below Example

#CORRECT

```
Total = (Number 1
          + Number 2
          - Number 3)
```

Indentation

- Indentation is extremely important in Python.
- The Indentation level of lines of code in python determines how statements are grouped together.



1. Expected an indented block

```
x = 2
if x % 2 == 0:
    print("It is an even number")
```

```
File "<ipython-input-20-d2c95d58e212>", line 3
    print("It is an even number")
          ^
IndentationError: expected an indented block
```

```
x = 2
if x % 2 == 0:
    print("It is an even number")
```

```
It is an even number
```

2. Unexpected Indent



```
x = 2
if x % 2 == 0:
    print("It is an even number")
```



```
File "<ipython-input-24-a296ed44a7f2>", line 2
    if x % 2 == 0:
        ^
IndentationError: unexpected indent
```



```
x = 2
if x % 2 == 0:
    print("It is an even number")
```

It is an even number

3. Unindent does not match any outer indentation level

```
def greeting():
    print("Greetings of the day")
    return

greeting()

File "<ipython-input-30-698032a46f85>", line 3
    return
          ^
IndentationError: unindent does not match any outer indentation level
```

```
def greeting():
    print("Greetings of the day")
    return

greeting()
```

Greetings of the day

Tabs vs. Spaces

➤ Tabs vs. Spaces

The key indentation rules laid out by PEP 8 are the following:

- Use 4 consecutive spaces to indicate indentation.
- Prefer spaces over tabs.

➤ Indentation following line breaks

- Add a comment after the final condition. Due to syntax highlighting in most editors, this will separate the conditions from the nested code:

Not Recommended

```
x = 5  
if (x > 3 and  
    x < 10):  
    print(x)
```

Recommended

```
x = 5  
if (x > 3 and  
    x < 10):  
    # Both conditions satisfied  
    print(x)
```

```
x = 5  
if (x > 3 and  
    x < 10):  
    print(x)
```

Not Recommended

```
var = function(arg_one, arg_two,  
              arg_three, arg_four)
```

Recommended

```
var = function(  
              arg_one, arg_two,  
              arg_three, arg_four)
```

Not Recommended

```
def function(  
            arg_one, arg_two,  
            arg_three, arg_four):  
    return arg_one
```

Recommended

```
def function(  
            arg_one, arg_two,  
            arg_three, arg_four):  
    return arg_one
```

➤ Where to put the closing Braces

Not Recommended

```
▶ list_of_numbers = [ 1, 2, 3,  
                      4, 5, 6,  
                      7, 8, 9]
```

1. Method

```
▶ list_of_numbers = [  
                      1, 2, 3,  
                      4, 5, 6,  
                      7, 8, 9  
]
```

2. Method

```
▶ list_of_numbers = [  
                      1, 2, 3,  
                      4, 5, 6,  
                      7, 8, 9  
]
```

COMMENTS:

Comments are lines that exist in computer programs that are ignored by compilers and interpreters.

Comment begins with a hash mark (#)

Generally, comment looks like this:

this a comment

Because comment does not execute ,when you will run program you will not see any indication of the comment there.

BLOCK COMMENTS:

Each line of block comments starts with a # and a single space

Paragraphs inside a block comment are separated by a line containing a single #.

Anti-pattern

```
#This comment needs a space
def print_name(self):
    print(self.name)
```

Best practice

```
# Comment is correct now
def print_name(self):
    print(self.name)
```

INLINE COMMENTS:

Inline comment should be separated by at least two spaces from the comment.

They should start with a # and a single space

Inline comments are unnecessary and in fact distracting if they state the obvious

Anti-pattern

```
def print_name(self):  
    print(self.name) #This comment needs a space
```

Best practice

```
def print_name(self):  
    print(self.name) # Comment is correct now
```

DOCSTRING COMMENTS:

A docstring is added as a comment string right below the function, module, or object

RULES:

A docstring is either a single line, or a multi-line comment

In latter case, the first line is short description, and after the first line an empty line follows

This is a basic example of what it looks like:

```
def add(value1, value2):
    """Calculate the sum of value1 and value2."""
    return value1 + value2
```

In the Python interactive help system, the docstring is then made available via the `__doc__` attribute.

```
>>> print add.__doc__
Calculate the sum of value1 and value2.
```

Inline Comments vs Block Comments

Inline comments look like this

```
x = x + 1          # Compensate for border
```

While block comments look like this

```
# Compensate for border. These comments  
# often cover multiple lines.  
x = x + 1
```

Whitespace in Expressions and Statements

1) Whitespace Around Binary Operators

Surround the following binary operators with a single space on either side:

- Assignment operators (=, +=, -=, and so forth)
- Comparisons (==, !=, >, <, >=, <=) and (is, is not, in, not in)
- Booleans (and, not, or)

Note: When = is used to assign a default value to a function argument, do not surround it with spaces.

Python

```
# Recommended
def function(default_parameter=5):
    # ...
```

```
# Not recommended
def function(default_parameter = 5):
    # ...
```

- Adding space when there is more than one operator in a statement.

```
Python
```

```
# Recommended
y = x**2 + 5
z = (x+y) * (x-y)
```

```
# Not Recommended
```

```
y = x ** 2 + 5
z = (x + y) * (x - y)
```

- Adding space to if statements where there are multiple conditions.

```
Python
```

```
# Not recommended
if x > 5 and x % 2 == 0:
    print('x is larger than 5 and divisible by 2!')
```

```
Python
```

```
# Recommended
if x>5 and x%2==0:
    print('x is larger than 5 and divisible by 2!')
```

Note : Use the same amount of whitespace either side of the operator.

The following is not acceptable :

Python

```
# Definitely do not do this!
if x >5 and x% 2== 0:
    print('x is larger than 5 and divisible by 2!')
```

When to Avoid Adding Whitespace

- Trailing space
- Immediately inside parentheses, brackets, or braces:

Python

```
# Recommended  
my_list = [1, 2, 3]  
  
# Not recommended  
my_list = [ 1, 2, 3, ]
```

- Before a comma, semicolon, or colon:

Python

```
x = 5  
y = 6  
  
# Recommended  
print(x, y)  
  
# Not recommended  
print(x , y)
```

Before the open parenthesis that starts the argument list of a function call:

Python

```
def double(x):
    return x * 2

# Recommended
double(3)

# Not recommended
double (3)
```

Before the open bracket that starts an index or slice:

Python

```
# Recommended
list[3]

# Not recommended
list [3]
```

- Between a trailing comma and a closing parenthesis:

```
Python
```

```
# Recommended
tuple = (1,)

# Not recommended
tuple = (1, )
```

- To align assignment operators:

```
Python
```

```
# Recommended
var1 = 5
var2 = 6
some_long_var = 7

# Not recommended
var1      = 5
var2      = 6
some_long_var = 7
```

Programming Recommendations

❖ Two Programming Recommendations by PEP-8

A) # Not recommended

```
my_bool = 6 > 5  
if my_bool == True:  
    return '6 is bigger than 5'
```

B) # Recommended

```
if my_bool:  
    return '6 is bigger than 5'
```

In the above program B is recommended over A by the PEP-8

C) # Not recommended

```
my_list = []  
if not len(my_list):  
    print('List is empty!')
```

D) # Recommended

```
my_list = []  
if not my_list:  
    print('List is empty!')
```

In the above program D is recommended over C by the PEP-8

Q. When to Ignore PEP-8

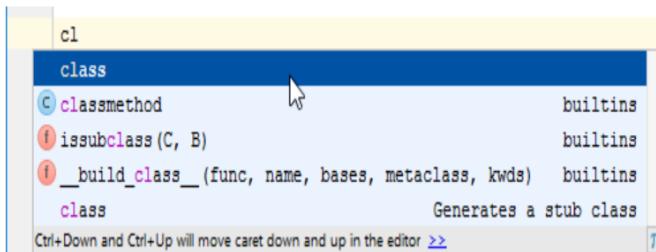
ANSWER: NEVER

Though, there are some guidelines in PEP-8 that are inconvenient in some instances:

- Complying with PEP-8
 - Code surrounding
 - Code compatibility

Tips and Tricks to Help Ensure Your Code Follows PEP 8

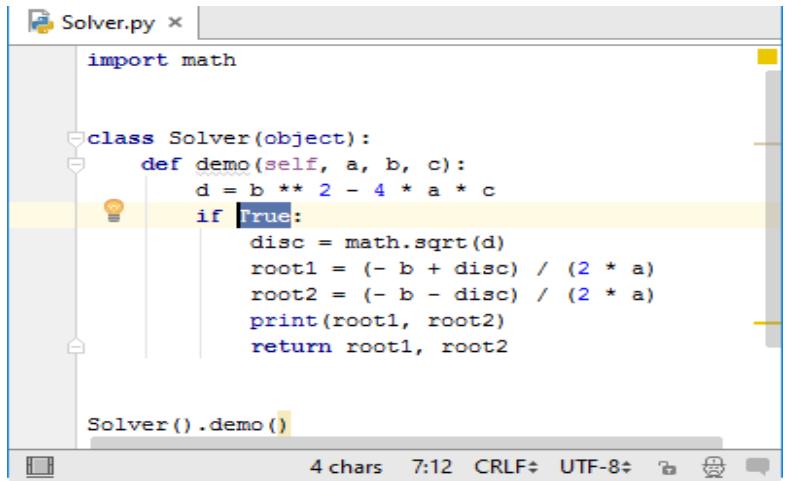
Highlighting code style violations:



(Refer to Code Completion page of the product documentation for details.)

Generating Source code:

Select `if` option from the suggestion list. As you see, PyCharm automatically adds `if True:` and indents the selected lines:



```
import math

class Solver(object):
    def demo(self, a, b, c):
        d = b ** 2 - 4 * a * c
        if True:
            disc = math.sqrt(d)
            root1 = (- b + disc) / (2 * a)
            root2 = (- b - disc) / (2 * a)
            print(root1, root2)
        return root1, root2

Solver().demo()
```

Linter-python-pep8 package

This linter-python-pep8 plugin or Linter provides an interface to pep8. It will be used with files that have the Python syntax.

Installation:

Before using this plugin, you should make sure that pep8 is installed on your system. You can follow following instructions to install pep8:

Install python.

Install pep8 by typing the following in a terminal:

```
pip install pep8
```

Black

Black can be installed by running pip install black. It requires Python 3.6.0+ to run. Once Black is installed, you will have a new command-line tools called black available to you in your shell, and you're ready to start.

```
$ pip install black
```

Format a Single File:

Let's look at this simple example: here are my two python functions in my python file called sample_code.py.

```
def add(a,      b):
    answer = a + b
    return answer

def sub(c,
       d):
    answer = c - d
    return answer
```

You can use `black sample_code.py` in the terminal to change the format. After running Black, you will see the following output:

```
reformatted sample_code.py
All done! ✨✨
1 file reformatted.
```

Then you open `sample_code.py` to see formatted python code:

```
def add(a, b):
    answer = a + b

    return answer

def sub(c, d):
    answer = c - d

    return answer
```

Example of code and layout.

With space and without space.

WITH SPACE.

*ex- MY NAME IS NITESH

WITHOUT SPACE.

*ex- MYNAMEISNITESH

Maximum line length and line breaking.

Recommended

Python

- Ex-

```
def function(arg_one, arg_two,
              arg_three, arg_four):
    return arg_one
```

Not Recommended

Python

- Ex-

```
from mypkg import example1, \
example2, example3
```

Should a line break Before or After A Binary Operator.

Python

- Ex-

```
# Recommended
total = (first_variable
         + second_variable
         - third_variable)
```

Python

- Ex-

```
# Not Recommended
total = (first_variable +
         second_variable -
         third_variable)
```

Example of comments.

block comment.

Anti-pattern.

Example

```
#This is a comment  
print("Hello, World!")
```

Best-practice.

Example

```
#This is a comment  
#written in  
#more than just one line  
print("Hello, World!")
```

Inline comments.

Anti-pattern.

Python

```
x = 5 # This is an inline comment
```

Best practice.

Python

```
x = 'John Smith' # Student Name
```

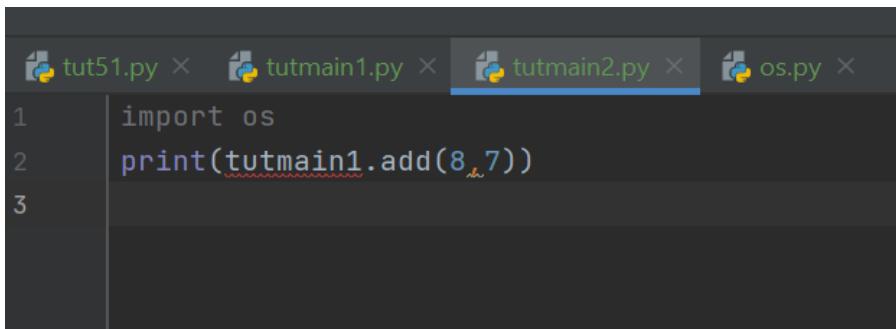
Documentation string comment.

```
"""Return a foobang  
  
Optional plotz says to  
frobinate the bizbaz first.  
"""
```

EXAMPLE OF NAMING CONVENTION

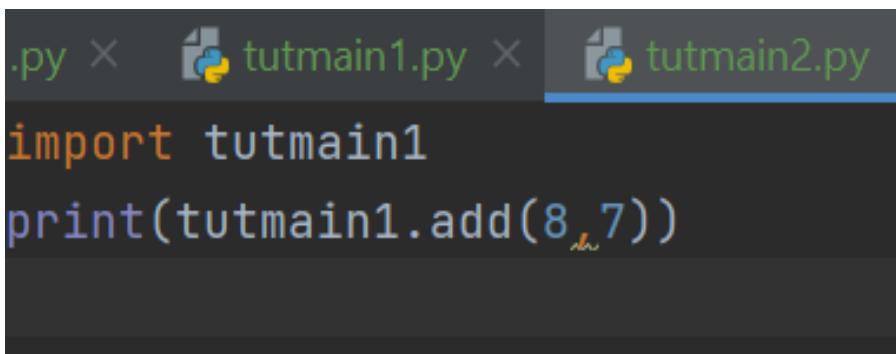
NAMING MODULE WITH HELP OF PEP8

Not recommended



```
tut51.py × tutmain1.py × tutmain2.py × os.py ×  
1 import os  
2 print(tutmain1.add(8,7))  
3
```

Recommended



```
.py × tutmain1.py × tutmain2.py ×  
import tutmain1  
print(tutmain1.add(8,7))
```

NAMING VARIABLE WITH HELP OF PEP8

Variable:

```
>>> # Not recommended  
>>> x = 'John Smith'  
>>> y, z = x.split()  
>>> print(z, y, sep=', ')  
'Smith, John'
```

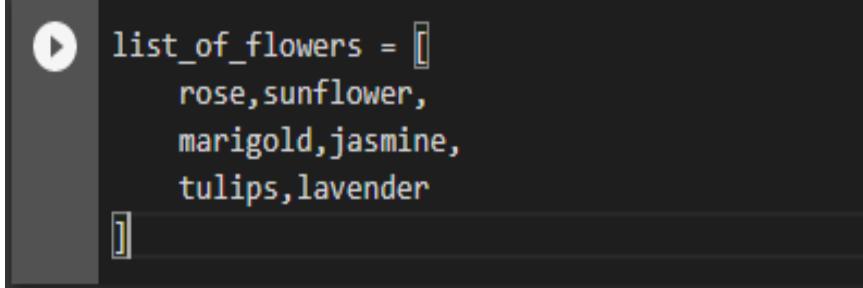
>>>

```
>>> # Recommended  
>>> name = 'John Smith'  
>>> first_name, last_name = name.split()  
>>> print(last_name, first_name, sep=', ')  
'Smith, John'
```

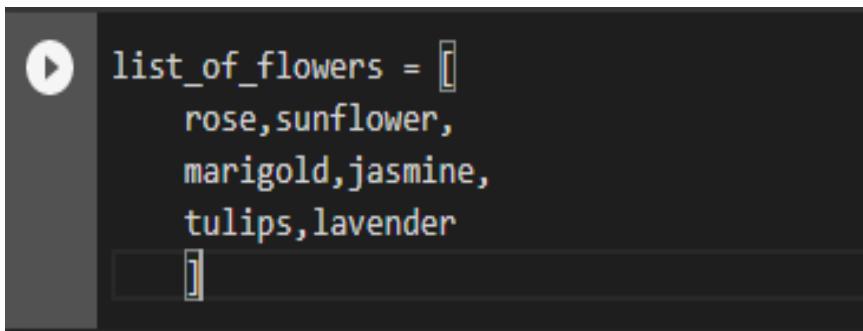
⊕ EXAMPLES OF INDENTATION

❖ METHODS OF WHERE TO PUT CLOSING BRACES:-

Recommended



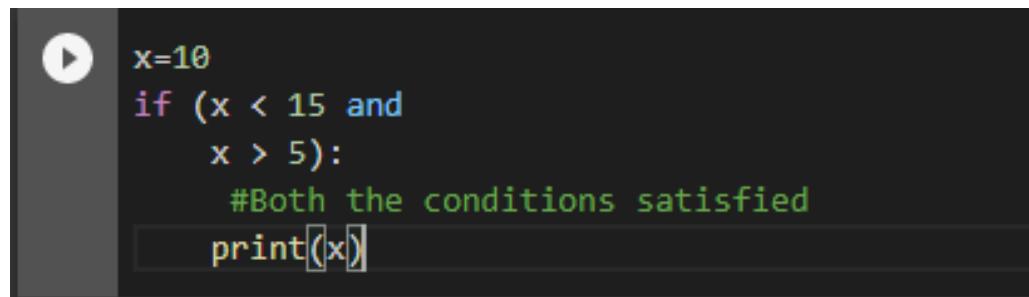
```
list_of_flowers = [rose,sunflower,  
                   marigold,jasmine,  
                   tulips,lavender]  
[]
```



```
list_of_flowers = [rose,sunflower,  
                   marigold,jasmine,  
                   tulips,lavender]  
[]
```

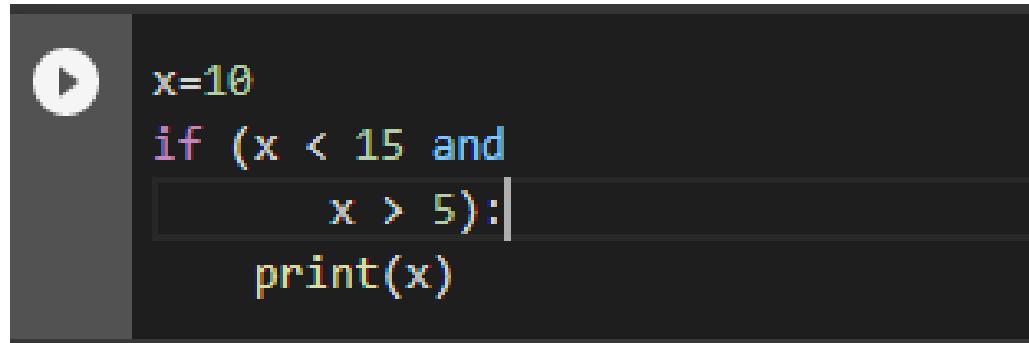
❖ Methods for following line breaks

Recommended



A screenshot of a Python code editor showing a single-line if statement. The code is:

```
x=10
if (x < 15 and
    x > 5):
    #Both the conditions satisfied
    print(x)
```



A screenshot of a Python code editor showing a multi-line if statement. The code is:

```
x=10
if (x < 15 and
    x > 5):
    print(x)
```

EXAMPLE OF WHITESPACING

1. Adding space when there is more than one operator in a statement.



```
#recommended  
b = a**8 + 5  
c = (a+b) * (a-b)
```



```
#not recommended  
b = a ** 8 + 5  
c = (a + b) * (a - b)
```

1. Adding space to if statements where there are multiple conditions.

#Recommended

```
if x>8 and x%2== 0:  
    print('x is larger than 8 and divisible by 2!')
```

#not Recommended

```
if x > 8 and x % 2 == 0:  
    print('x is larger than 8 and divisible by 2!')
```

THANK YOU