Python Session 1

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# Script to print statements

print("Hello Python")

print('How r u')

print("Let's go for lunch")

print('He said,"I am busy today"')

print('He said,"Let\'s go for lunch"')

print("He said,\"Let's go for lunch\"")

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Single line comments start with #

Multiple line comments can start with ''' and end with '''

(or) start """ and end with """

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#Adddition and Concatination

print(2+5)

print("Hello"+"Python")

print("Hi"+"5")

print("hi"+str(5))

print("8"+"5")

print("8"+str(5))

print(int("8")+5)

print("Hello","Python")

print("Hi",5)

=======================================================================

#if conditions

#Program to find the smallest of 3 numbers

a = 10

b = 20

c= 5

if a < b and a < c:

print("a is the smallest ")

elif b < c:

print("b is the smallest")

else:

print("c is the smallest")

print("Program finished")

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Loops

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#Program to display the even numbers between 1-10

i = 2

while i <= 10:

print(i)

i = i + 2

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#Program to display the 2 tables

i = 1

while i <= 10:

print(2,"\*",i,"=",2\*i)

i = i + 1

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Python Session 2

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Python Session 2

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For Loops

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a=[1,4,6,9,10]

for i in a:

print(i)

tools=["Docker","Jenkins","Git","Ansible"]

for x in tools:

print(x)

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#To display the sum of numbers in a list

numbers=[10,50,90,40,60]

sum = 0

for i in numbers:

sum = sum + i

print("The total sum of numbers is: ",sum)

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#To find the max number in a list

numbers=[10,50,90,40,60]

max = 0

for i in numbers:

if max < i:

max = i

print("The maximum number in the list is :",max)

#To find the min number in a list

l=[4,8,7,1,4,9,7,-85]

min=l[0]

for x in l:

if x<min:

min=x

print("min number in list is:", min)

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#Program to find the number of even and odd

numbers=[1,2,3,4,5,6,7,8,9,10,11]

even = 0

odd = 0

for i in numbers:

if i % 2 == 0:

even = even + 1

print("Even :",i)

else:

odd = odd + 1

print("Odd :"i)

print("The even number count is :",even)

print("The odd number count is :",odd)

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Read Write operations on Files

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#To create a new file and write into it

text ="\nThis is a python session"

file=open("C:/Users/gandh/OneDrive/Desktop/file1.txt","w")

file.write(text)

#To append we can open in append mode using 'a'

text ="\nThis is a python session"

file=open("C:/Users/gandh/OneDrive/Desktop/file1.txt","a")

file.write(text)

#To read all the content of a file

file=open("C:/Users/gandh/OneDrive/Desktop/file1.txt","r")

text = file.read()

print(text)

#To read the content line by line

file=open("C:/Users/gandh/OneDrive/Desktop/file1.txt","r")

text = file.readlines()

for x in text:

print(x)

#To copy all the content of a file into another file

file1=open("C:/Users/gandh/OneDrive/Desktop/file1.txt","r")

file2=open("C:/Users/gandh/OneDrive/Desktop/file2.txt","w")

text = file1.read()

file2.write(text)

#To copy alternate lines of code from one file to another

file1=open("C:/Users/gandh/OneDrive/Desktop/file1.txt","r")

file3=open("C:/Users/gandh/OneDrive/Desktop/file3.txt","a")

text=file1.readlines()

i = 0

while i < len(text):

file3.write(text[i])

i = i + 2

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Python Session 3

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Functions in Python

Functions are used to create reusable code

def add(x,y):

print(x+y)

def sub(x,y):

print(x-y)

def mul(x,y):

print(x\*y)

def div(x,y):

print(x/y)

add(7,8)

add(100,200)

mul(5,2)

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User defined function to copy the content of a file to another file

def copy\_file(srcfile,destfile):

file1=open(srcfile,'r')

file2=open(destfile,'w')

data = file1.read()

file2.write(data)

copy\_file("C:\\Users\\gandh\\OneDrive\\Desktop\\linux.txt","C:\\Users\\gandh\\OneDrive\\Desktop\\newlinux.txt")

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Classes and Objects

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class Calculator:

def add(self,a,b):

print(a+b)

def sub(self,a,b):

print(a-b)

def mul(self,a,b):

print(a\*b)

def div(self,a,b):

print(a/b)

def exp(self,a,b):

print(a\*\*b)

c = Calculator()

c.mul(5,4)

c.sub(10,9)

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Modules in Python

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Modules are code libraries

import math

import calendar

a = math.sqrt(16)

print(a)

b = math.factorial(5)

print(b)

c = calendar.isleap(2020)

print(c)

d = calendar.month(2021,2)

print(d)

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Creating customised modules

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Create a python program "dimesnsions.py"

def area(length,breadth):

print(length\*breadth)

def perimeter(length,bredth):

print(2\*(length+bredth))

To use the above module in another python program

import dimensions

dimensions.area(10,5)

dimensions.perimeter(10,5)

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Program to accept a password and check if it is 6-12 characters long

It should have lower case and upper case alphabets

It should have number and the special character @ # $

import re

p = input("Enter some password: ")

x = True

while x:

if (len(p)<6 or len(p)>12):

break

elif not re.search("[a-z]",p):

break

elif not re.search("[A-Z]",p):

break

elif not re.search("[0-9]",p):

break

elif not re.search("[$#@]",p):

break

else:

print("Valid password")

x= False

if x:

print("Invalid password")

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Python Session 4

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Python docker integrations

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Python script to download any image

import subprocess

image = input("Enter the image name: ")

subprocess.call("docker pull %s"%(image),shell=True)

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Python script to delete any container

import subprocess

container = input("Enter the name of the container: ")

subprocess.call("docker rm -f %s"%(container),shell=True)

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Python script to create a container based on interactive inputs

import subprocess

image=input("Enter the imagename: ")

name=input("Enter some name for container: ")

ports=input("Enter the ports to be mapped: ")

detach=input("Do you want to run in detached mode y/n: ")

if detach=='y':

subprocess.call("docker run --name %s -d -p %s %s"%(name,ports,image),shell=True)

elif detach=='n':

subprocess.call("docker run --name %s -p %s %s"%(name,ports,image),shell=True)

else:

print("Invalid option")

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Python script to delete only tomcat containers

import subprocess

subprocess.call('docker rm -f $(docker container ls | grep tomcat | cut -d " " -f 1)',shell=True)

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Python script to create multiple containers

import subprocess

image=input("Enter the imagename: ")

count=input("Enter the number of containers that should be created: ")

i = 1

while i <= int(count):

subprocess.call("docker run --name container%d -P -d %s"%(i,image),shell=True)

i = i + 1

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Python Session 5

When we run command 🡪 $ docker system prune -af

This command will delete all images along with custom networks that we created. It will also delete dangling volumes (volumes which are not associated with any container)

Python script to delete all docker images

import subprocess

subprocess.call('docker images | cut -d " " -f 1 > file1',shell=True)

images = open("file1",'r').readlines()

i = 1

while i < len(images):

img = images[i]

subprocess.call("docker rmi %s"%(img),shell=True)

i = i + 1

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Python script to create a multi container docker architecture

import subprocess

subprocess.call("docker network create --driver bridge intelliqit",shell=True)

subprocess.call("docker run --name mydb -d -e MYSQL\_ROOT\_PASSWORD=intelliqit --network intelliqit mysql:5",shell=True)

subprocess.call("docker run --name mywordpress -d -p 8989:80 --network intelliqit wordpress",shell=True)

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Python script to create 5 networks and create 5 nginx containers

on those networks

import subprocess

i = 1

while i <= 5:

subprocess.call("docker network create --driver bridge intelliqit%d"%(i),shell=True)

subprocess.call("docker run --name nginx%d --network intelliqit%d -d -P nginx"%(i,i),shell=True)

i = i + 1

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Interactive program in python to create services in docker swarm

import subprocess

image=input("Enter the image name: ")

service=input("Enter some name for service: ")

port=input("Enter the ports to be mapped: ")

replicas=input("Enter the number of replicas: ")

subprocess.call("docker service create --name %s -p %s --replicas %s %s"%(service,port,replicas,image),shell=True)

=========================================================================

PythonSession 6

Python script to perfrom autoscalling of services in swarm based

on available free memory

vim script.py

import subprocess

subprocess.call("free -m | grep Mem | awk '{print $4}' > file2",shell=True)

free=int(open("file2",'r').read())

if free >= 150 and free < 250:

subprocess.call("docker service scale webserver=3",shell=True)

elif free >=250 and free < 500:

subprocess.call("docker service scale webserver=6",shell=True)

else:

subprocess.call("docker service scale webserver=10",shell=True)

Set this script in crontab

crontab -e

\* \* \* \* \* /root/script.py

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Python automation on Jenkins

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1 Create an ubuntu20 instance and install Jenkins

2 Install pip

sudo apt-get install python3-pip

3 Install python-jenkins

sudo pip3 install python-jenkins

Script to see info about all jobs in jenkins

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import jenkins

j = jenkins.Jenkins("http://localhost:8080","admin","admin")

print(j.get\_jobs())

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Script to run a jenkins job

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import jenkins

j = jenkins.Jenkins("http://localhost:8080","admin","admin")

print(j.build\_job("Development"))

=============================================================

Script to create a jenkins job

import jenkins

j = jenkins.Jenkins("http://localhost:8080","admin","admin")

j.create\_job("Sample1",jenkins.EMPTY\_CONFIG\_XML)

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Script to delete a jenkins job

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import jenkins

j = jenkins.Jenkins("http://localhost:8080","admin","admin")

j.delete\_job("NewDevelopment")

=====================================================================

Script to create multpiple jenkins jobs

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import jenkins

j = jenkins.Jenkins("http://localhost:8080","admin","admin")

i = 1

while i <= 10:

j.create\_job("Sample%d"%i,jenkins.EMPTY\_CONFIG\_XML)

i = i + 1

---------------------------------------------------------------------------

Script to take backup of multiple jenkins jobs

import jenkins

j = jenkins.Jenkins("http://localhost:8080","admin","admin")

i = 1

while i <= 10:

j.copy\_job("Sample%d"%i,"NewSample%d"%i)

i = i + 1

===============================================================================

Script to take delete multiple jenkins jobs

import jenkins

j = jenkins.Jenkins("http://localhost:8080","admin","admin")

i = 1

while i <= 10:

j.delete\_job("Sample%d"%i)

i = i + 1

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