PROGRAM 1:MUTABLE AND IMMUTABLE TYPES

Requirement:

Mr.Hulk is tired of body building.He now wants to exercise his brain.He has found his interest in Python.As a 1st initiative he wants to build a program to store university details of CHIRST (DoE,Campuses,Administrators details,Department details, Programmes,Course details,Student details,etc). Since you are the budding data scientists please help hi in achieving his accomplishments.

Note: For the sake of simplicity course,teachhers and students details can be restricted to MDS program of computer science department.

In [1]:
```
# Importing Libraries

import pandas as pd # importing panda
import numpy as np  # importing Numpy
```

In [2]:
```
#Function for Date of Establishment [tuple]

def DoE():
    print("\n")
    my_tuple = ("\t    DATE OF ESTABLISHMENT  \n\t\t\t    ======================",
                "Christ (Deemed To Be University) Bangalore, Karnataka",
                "Founded by St Kuriakose Elias Chavara on", [(15),"july",(1969)])
    print("\t\t",my_tuple[0])
    print("\t\t",my_tuple[1])
    print("\t\t",my_tuple[2])
    print("\t\t\t\t",my_tuple[3])
```

In [3]:
```
#Function for Campuses Details [tuple]

def Campus_Details():
    print("\n")
    print("\t\t\t CAMPUSES  \n\t\t\t=========\n")
    Campuses = ("Central Campuse,Bangalore",
                "Bennerghatta Road Campus",
                "Kengeri campus",
                "Delhi NCR campus",
                "Pune lavasa campus")
    for i in Campuses:
        print("\t\t",i)
```

In [4]:

```
#Function for Administrations Details [List]

def Administrations_Details():
    print("\n")
    print("\t\t\t\t   GENERAL ADMINISTRATION  \n\t\t\t\t   ======================\n")
    Admin1 = ["CHANCELLOR : Dr Fr George Edayadiyil, CMI",
              "VICE CHANCELLOR: Dr Fr Abraham V M, CMI",
              "PRO-VICE CHANCELLOR: Dr Fr Jose",
              "REGISTRAR:Dr Anil Joseph Pinto",
              "CHIEF FINANCE OFFICER: Fr Jobi Xavier, CMI",
              "CONTROLLER OF EXAMINATIONS: Prof. Johny Joseph",
              "PERSONNEL OFFICER: Dr Fr Joseph Varghese"]
    for i in Admin1:
        print("\t\t\t",i)

    print("\n\n\t\t\t\t   ACADEMIC ADMINISTRATION  \n\t\t\t\t   ======================\n")
    Admin2 = ["DEAN - ARTS AND HUMANITIES                  : Dr John Joseph Kennedy",
              "DEAN - SOCIAL SCIENCES                      : Dr Tony Sam George",
              "DEAN - SCIENCES                             : Dr George Thomas C",
              "DEAN - COMMERCE                             : Dr Tomy K Kallarakal",
              "DEAN - MANAGEMENT                           : Dr Jain Mathew",
              "DEAN - BUSINESS STUDIES & SOCIAL SCIENCES   : Dr Jyothi Kumar",
              "DEAN - FACULTY OF ENGINEERING               : Dr Iven Jose",
              "DEAN - SCHOOL OF LAW                        : Dr Jayadevan S Nair",
              "DELHI NCR CAMPUS                            : Dr Fr Viju P D",
              "PUNE LAVASA CAMPUS                          : Dr Fr Jossy P George",
              "DEAN - INTERNATIONAL RELATIONS              : Dr Suniti Phadke",
              "ASSOC. DEAN - INSTITUTE OF MANAGEMENT       : Dr Georgy P Kurien",
              "ASSOC. DEAN - INSTITUTE OF MANAGEMENT       : Dr Jeevananda S",
              "ASSOC. DEAN - SCIENCE AND CHOICE BASED INTERDISCIPLINARY MASTERS PROGRAMME  : Dr JOSEPH T V  "]
    for i in Admin2:
        print("\t",i)
```

In [5]:

```
#Function for Department Details [Tuple]

def Department_Details():
    print("\n")
    print("\n\t\t\t\t   ARTS AND HUMANTIES   \n\t\t\t\t   ==================\n")
    Dean1 = ( "ENGLISH",
              "LANGUAGES",
              "MEDIA STUDIES",
              "PERFORMING ARTS,THEATRE STUDIES AND MUSIC",
              "PHILOSOPHY AND THEOLOGY")
    for i in Dean1:
        print("\t\t\t",i)
    print("\n")
    print("\n\t\t\t\t   SOCIAL SCIENCES   \n\t\t\t\t   ================\n")
    Dean2 = ( "ECONOMICS",
              "INTERNATIONAL STUDIES,POLITICAL SCIENCE AND HISTORY",
              "PSYCHOLOGY",
              "SOCIOLOGY AND SOCIAL WORK")
    for i in Dean2:
        print("\t\t\t",i)
    print("\n")
    print("\n\t\t\t\t   SCIENCES   \n\t\t\t\t   ===========\n")
    Dean3 = ("CHEMISTRY",
              "COMPUTER SCIENCES",
              "LIFE SCIENCES",
              "MATHEMATICS",
              "PHYSICS AND ELECTRONICS",
              "STATISTICS")
    for i in Dean3:
        print("\t\t\t",i)
    print("\n")
    print("\n\t\t\t\t     COMMERCE   \n\t\t\t\t   ===========\n")
    Dean4 = ( "COMMERCE",
              "PROFESSIONAL STUDIES")
    for i in Dean4:
        print("\t\t\t",i)

    print("\n")
    print("\n\t\t\t    SCHOOL OF BUSINESS AND MANAGEMENT   \n\t\t\t  ====================================\n")
    Dean5 = ( "BUSINESS MANAGEMENT",
              "HOTEL MANAGEMENT",
```

```
          "TOURISM MANAGEMENT")
for i in Dean5:
    print("\t\t\t",i)

print("\n")
print("\n\t\t\t  BANGALORE BANNERGHATTA ROAD CAMPUS   \n\t\t\t  ====================================\n")
Dean6 = ( "ARTS & HUMANITIES,SOCIAL SCIENCES,BUSINESS & MANAGEMENT")
print("\t\t\t",Dean6)

print("\n")
print("\n\t\t\t  SCHOOL OF ENGINEERING AND TECHNOLOGY   \n\t\t\t\t  ================================\n")
Dean7 = ( "Mechanical and Automobile Engineering",
          "Civil Engineering",
          "Electrical and Electronics Engineering",
          "Sciences and Humanities",
          "Computer Science and Engineering")
for i in Dean7:
    print("\t\t\t",i)

print("\n")
print("\n\t\t\t\t     SCHOOL OF LAW   \n\t\t\t\t   ==================\n")
Dean8 = ("SCHOOL OF LAW")
print("\t\t\t\t  ",Dean8)

print("\n")
print("\n\t\t\t\t    SCHOOL OF EDUCATION   \n\t\t\t\t   ======================\n")
Dean9 = ("SCHOOL OF EDUCATION")
print("\t\t\t\t  ",Dean9)

print("\n")
print("\n\t\t\t\t    SCHOOL OF ARCHITECTURE   \n\t\t\t\t   ======================\n")
Dean10 = ("ARCHITECTURE")
print("\t\t\t\t  ",Dean10)
```

In [6]:

```
#Function for Programmes Details in COMPUTER SCIENCES [Tuple]

def Programmes_Details():
    print("\n")
    print("\t\t\t\t\t  Doctoral (PhD)   \n\t\t\t\t\t   =============\n")
    P1 = ( "DOCTOR OF PHILOSOPHY (PHD) IN DATA SCIENCE",
           "DOCTOR OF PHILOSOPHY (PHD) IN COMPUTER SCIENCE")
    for i in P1:
        print("\t\t\t",i)
    print("\n")
    print("\t\t\t\t\t  M Phil   \n\t\t\t\t\t   =========\n")
    P2 = ( "DOCTOR OF PHILOSOPHY (PHD) IN DATA SCIENCE")
    print("\t\t\t",P2)
    print("\n")
    print("\t\t\t\t\t     Postgraduate   \n\t\t\t\t\t   =================\n")
    P3 = ( "MASTER OF SCIENCE (DATA SCIENCE)",
           "MSC (DATA ANALYTICS)",
           "MASTER OF SCIENCE (COMPUTER SCIENCE)",
           "MASTER OF SCIENCE (COMPUTER SCIENCE AND APPLICATIONS)",
           "MASTER OF COMPUTER APPLICATIONS (MCA)")
    for i in P3:
        print("\t\t\t",i)
    print("\n")
    print("\t\t\t\t\t    Undergraduate   \n\t\t\t\t\t   ===============\n")
    P4 = ( "BSC CME-BACHELOR OF SCIENCE (BSC) IN COMPUTER SC, MATHS, ELECTRONICS",
           "BSC CMS-BACHELOR OF SCIENCE (BSC) IN COMPUTER SC, MATHS, STATISTICS",
           "BCA-BACHELOR OF COMPUTER APPLICATIONS")
    for i in P4:
        print("\t\t\t",i)
```

In [7]:
```
#Function for Course Details in MDS [Dictionary]

def Course_Detail():
    print("\n")
    Fac={'Course code':('MDS161A','MDS131','MDS133','MDS134','MDS171','MDS173','MDS132','MDA172'),
         'Course name':('Introduction to Statistics','Mathematical Foundation','Principles of Data Science','Research Me
         'Instructor':('Dr.Sahana Prasad','Dr Jayanta Biswas','Dr Rajesh R','Dr Deepa V Jose','Dr Senthilnathan T','Dr U
    for i,j in Fac.items():
        print("{}:{}\n".format(i,j))
```

In [8]:
```
#Function for Student Details [Dictionary]

import csv
def Student_Detail():
    print("\n")
    stud=csv.DictReader(open("Python_list.csv"))
    for i in stud:
        print(i)
```

In [9]:
```
#Function for Student Details [Dictionary with pandas]

def Student_Details():
    print("\n")
    stud=pd.read_csv('Python_list.csv')
    return stud
```

In [11]:
```
#Function for Course Details in MDS [Dictionary with pandas]

def Course_Details():
    print("\n")
    Faculty={'Course code':pd.Series(('MDS161A','MDS131','MDS133','MDS134','MDS171','MDS173','MDS132','MDA172')),
             'Course name':pd.Series(('Introduction to Statistics','Mathematical Foundation','Principles of Data Scienc
            'Instructor':pd.Series(('Dr.Sahana Prasad','Dr Jayanta Biswas','Dr Rajesh R','Dr Deepa V Jose','Dr Senthiln
    MDS_Faculty=pd.DataFrame(Faculty)
    return MDS_Faculty
```

In [13]:
```
# Function for About christ

def AboutChrist():
    print ("\t\t\t\t   CHRIST DEEMED TO BE UNIVERSITY\n\n")

    vision='''CHRIST (Deemed to be University), a premier educational institution, is an academic fraternity of individu

We strive to reach out to the star of perfection through an earnest academic pursuit for 'excellence,' and our efforts b

Education prepares one to face the challenges of life by bringing out the best in him/her. If this is well accepted, edu
    print("\t\t\t\t  The VISION of the CHRIST")
    print("\t\t\t\t  ========================")
    print(vision)


    mission='''CHRIST (Deemed to be University) is a nurturing ground for an individual's holistic development to make a
    print("\n\n\n\t\t\t\tThe Mission of the CHRIST:")
    print("\t\t\t\t  ========================")
    print(mission)

    Core_Values='''The values which guide us at CHRIST (Deemed to be University) are:
•  Faith in God
•  Moral Uprightness
•  Love of Fellow Beings
•  Social Responsibility
•  Pursuit of Excellence'''
    print("\n\n\n\t\t\t\tThe Core Values of the CHRIST:")
    print("\t\t\t\t  ========================")
    print(Core_Values)

    print("\n")
```

In [14]:
```
# Function for Admin page

def Admin():
    print("\t\t\t**************************************************************")
    print("\t\t\t\t\t\tWELCOME ADMIN")
    print("\t\t\t**************************************************************")
    print("Editing should be done")
#Editing options should be provided here
```

In [15]:

```
# Main Code

print("\n\n")
print("_____________________________________________________________________________________________________")
print("\t\t\t\t\t\tCHRIST (Deemed to be University) ")
print("_____________________________________________________________________________________________________")
print("\n\n")
opt="Y"
while (opt=="Y"):
    print("\nAre you an ADMIN ? (YES/NO)")
    admin=input()
    if(admin=="YES" or admin=="yes" or admin=="Yes"):
        print("Enter the password : ")
        password=input()
        if(password=="christadmin"):
            Admin()
        else:
            print("Invalid Password")
            print("Try again")
            password=input()

    elif(admin=="NO" or admin=="no" or admin=="No"):
        print("_____________________________________________________________________________________________________")
        print("\nSelect any: ")
        print("\n\t\t\t\t0. About Chist")
        print("\n\t\t\t\t1. DoE")
        print("\n\t\t\t\t2. Campuses ")
        print("\n\t\t\t\t3. Administrations")
        print("\n\t\t\t\t4. Department Details")
        print("\n\t\t\t\t5. Programmes Details")
        print("\n\t\t\t\t6. Course Details")
        print("\n\t\t\t\t7. Student Details")
        print("\n")
        print("Enter your choice for particular detials?")
        print("_____________________________________________________________________________________________________")
        choice=int(input())
        if(choice==0):
            AboutChrist()

        elif(choice==1):
```

```
            DoE()

        elif(choice==2):

            Campus_Details()

        elif(choice==3):

            Administrations_Details()

        elif(choice==4):

            Department_Details()

        elif(choice==5):

            Programmes_Details()

        elif(choice==6):

            Course_Details()

        elif(choice==7):

            Student_Details()

        else:
            print("Invalid Option")
    else:
        print("invalid option")
    print("\n")
    print("_____________________________________________________________________________________________________")
    print("Do you want to go back to home ? (Y/N)")
    opt=input()
```

```
Are you an ADMIN ? (YES/NO)
NO
```

```
Select any:

                                0. About Chist

                                1. DoE
```

OUTPUT OF EACH FUNCTIONS

In [16]:
```
# ABOUT CHRIST

AboutChrist()
```

CHRIST DEEMED TO BE UNIVERSITY

The VISION of the CHRIST
==========

CHRIST (Deemed to be University), a premier educational institution, is an academic fraternity of individuals dedicated to the motto of 'EXCELLENCE AND SERVICE.'

We strive to reach out to the star of perfection through an earnest academic pursuit for 'excellence,' and our efforts blossom into 'service' through our creative and empathetic involvement in the society to transform it.

Education prepares one to face the challenges of life by bringing out the best in him/her. If this is well accepted, ed ucation should be relevant to the needs of the time and address the problems of the day. Being inspired by Blessed Kuri akose Elias Chavara, the founder of Carmelites of Mary Immaculate and the pioneer in innovative education, CHRIST (Deem ed to be University) was proactive to define and redefine its mission and strategies reading the signs of the time.

The Mission of the CHRIST:
==========

CHRIST (Deemed to be University) is a nurturing ground for an individual's holistic development to make an effective co ntribution to the society in a dynamic environment.

The Core Values of the CHRIST:
==========

The values which guide us at CHRIST (Deemed to be University) are:

- Faith in God
- Moral Uprightness
- Love of Fellow Beings
- Social Responsibility
- Pursuit of Excellence

In [17]:
```
# Date of Establishment

DoE()
```

```
                DATE OF ESTABLISHMENT
                =====================
Christ (Deemed To Be University) Bangalore, Karnataka
Founded by St Kuriakose Elias Chavara on
                    [15, 'july', 1969]
```

In [18]:
```
# Different Campuses

Campus_Details()
```

```
                CAMPUSES
                =========

Central Campuse,Bangalore
Bennerghatta Road Campus
Kengeri campus
Delhi NCR campus
Pune lavasa campus
```

In [19]:
```
# Administration details

Administrations_Details()
```

```
                                GENERAL ADMINISTRATION
                                ======================

                          CHANCELLOR : Dr Fr George Edayadiyil, CMI
                          VICE CHANCELLOR: Dr Fr Abraham V M, CMI
                          PRO-VICE CHANCELLOR: Dr Fr Jose
                          REGISTRAR:Dr Anil Joseph Pinto
                          CHIEF FINANCE OFFICER: Fr Jobi Xavier, CMI
                          CONTROLLER OF EXAMINATIONS: Prof. Johny Joseph
                          PERSONNEL OFFICER: Dr Fr Joseph Varghese


                                ACADEMIC ADMINISTRATION
                                ======================

DEAN - ARTS AND HUMANITIES                 : Dr John Joseph Kennedy
DEAN - SOCIAL SCIENCES                     : Dr Tony Sam George
DEAN - SCIENCES                            : Dr George Thomas C
DEAN - COMMERCE                            : Dr Tomy K Kallarakal
DEAN - MANAGEMENT                          : Dr Jain Mathew
DEAN - BUSINESS STUDIES & SOCIAL SCIENCES  : Dr Jyothi Kumar
DEAN - FACULTY OF ENGINEERING              : Dr Iven Jose
DEAN - SCHOOL OF LAW                       : Dr Jayadevan S Nair
DELHI NCR CAMPUS                           : Dr Fr Viju P D
PUNE LAVASA CAMPUS                         : Dr Fr Jossy P George
DEAN - INTERNATIONAL RELATIONS             : Dr Suniti Phadke
ASSOC. DEAN - INSTITUTE OF MANAGEMENT      : Dr Georgy P Kurien
ASSOC. DEAN - INSTITUTE OF MANAGEMENT      : Dr Jeevananda S
ASSOC. DEAN - SCIENCE AND CHOICE BASED INTERDISCIPLINARY MASTERS PROGRAMME  : Dr JOSEPH T V
```

In [20]:
```
# Department Details

Department_Details()
```

```
          ARTS AND HUMANTIES
          ==================

ENGLISH
LANGUAGES
MEDIA STUDIES
PERFORMING ARTS,THEATRE STUDIES AND MUSIC
PHILOSOPHY AND THEOLOGY


          SOCIAL SCIENCES
          ===============

ECONOMICS
INTERNATIONAL STUDIES,POLITICAL SCIENCE AND HISTORY
PSYCHOLOGY
SOCIOLOGY AND SOCIAL WORK


          SCIENCES
          ==========

CHEMISTRY
COMPUTER SCIENCES
LIFE SCIENCES
MATHEMATICS
PHYSICS AND ELECTRONICS
STATISTICS


            COMMERCE
```

==========

COMMERCE
PROFESSIONAL STUDIES

SCHOOL OF BUSINESS AND MANAGEMENT

BUSINESS MANAGEMENT
HOTEL MANAGEMENT
TOURISM MANAGEMENT

BANGALORE BANNERGHATTA ROAD CAMPUS

ARTS & HUMANITIES,SOCIAL SCIENCES,BUSINESS & MANAGEMENT

SCHOOL OF ENGINEERING AND TECHNOLOGY

Mechanical and Automobile Engineering
Civil Engineering
Electrical and Electronics Engineering
Sciences and Humanities
Computer Science and Engineering

SCHOOL OF LAW

SCHOOL OF LAW

SCHOOL OF EDUCATION

==========

SCHOOL OF EDUCATION

SCHOOL OF ARCHITECTURE

==========

ARCHITECTURE

In [21]:
```
# Programme Details

Programmes_Details()
```

```
                    Doctoral (PhD)
                     =============

DOCTOR OF PHILOSOPHY (PHD) IN DATA SCIENCE
DOCTOR OF PHILOSOPHY (PHD) IN COMPUTER SCIENCE


                    M Phil
                     =========

DOCTOR OF PHILOSOPHY (PHD) IN DATA SCIENCE


                      Postgraduate
                     =================

MASTER OF SCIENCE (DATA SCIENCE)
MSC (DATA ANALYTICS)
MASTER OF SCIENCE (COMPUTER SCIENCE)
MASTER OF SCIENCE (COMPUTER SCIENCE AND APPLICATIONS)
MASTER OF COMPUTER APPLICATIONS (MCA)


                     Undergraduate
                     ===============

BSC CME-BACHELOR OF SCIENCE (BSC) IN COMPUTER SC, MATHS, ELECTRONICS
BSC CMS-BACHELOR OF SCIENCE (BSC) IN COMPUTER SC, MATHS, STATISTICS
BCA-BACHELOR OF COMPUTER APPLICATIONS
```

In [22]:
```
# MDS course details

Course_Details()
```

Out[22]:

	Course code	Course name	Instructor
0	MDS161A	Introduction to Statistics	Dr.Sahana Prasad
1	MDS131	Mathematical Foundation	Dr Jayanta Biswas
2	MDS133	Principles of Data Science	Dr Rajesh R
3	MDS134	Research Methodology	Dr Deepa V Jose
4	MDS171	Data Base Technologies	Dr Senthilnathan T
5	MDS173	Programming for Data Science in Python	Dr Ummesalma M
6	MDS132	Probability and Distribution Theory	Dr Sharon Varghese
7	MDA172	Inferential Statistics	Dr Azarudheen S

In [23]:
```
# MDS student details

Student_Details()
```

Out[23]:

	Register_Number	Name
0	2048001	ADARSH SURESH
1	2048002	AKHIL A
2	2048003	ALEX MATHEW
3	2048004	ANGSHUMAN SINHA
4	2048005	ANIT VIJAY
...	...	...
59	2048060	VIOLA D SOUZA
60	2048061	YOSHA UPMANYU
61	2048062	ABHIJITH B M
62	2048064	DEEPAK PAUL CHERIAN
63	2048065	MEGHA M

64 rows × 2 columns