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 1s t initiative he wants to build a program to store university details of CHIRST (DoE,Campuses,Administrators deta ils,Department details, Programmes,Course details,Student details,etc). Since you are the budding data scientist s 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\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)
```

```python
#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)
```

```python
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  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)
```

```python
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))
```

```python
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)
```

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

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

```python
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
```

```python
# Main Code

print("\n\n")
print("_____")
print("\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()
```

```
_____
                            CHRIST (Deemed to be University)
_____


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()
```

<pre>
                        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
</pre>

```
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]:
```python
# 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]:
```python
# 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

```
# MDS student details

Student_Details()
```

	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

```
# MDS student details

Student_Details()
```