Task 6

Exercise 6.1: Person.

```
In [ ]:  person={
             'firstName':'Muhammad',
             'lastName':'Ali',
             'age':22,
             'city':'Karachi'
         }

         print(person['firstName'])
         print(person['lastName'])
         print(person['age'])
         print(person['city'])
```

```
Muhammad
Ali
22
Karachi
```

Exercise 6.2: Favorite Numbers.

```
In [ ]:  favoriteNumbers={
             'Ali':3,
             'Ahmed':5,
             'Usman':7,
             'Sami':9,
             'Sohail':11
         }

         num=favoriteNumbers['Ali']
         print("Ali's favorite number is "+str(num))

         num=favoriteNumbers['Ahmed']
         print("Ahmed's favorite number is "+str(num))

         num=favoriteNumbers['Usman']
         print("Usman's favorite number is "+str(num))

         num=favoriteNumbers['Sami']
         print("Sami's favorite number is "+str(num))

         num=favoriteNumbers['Sohail']
         print("Sohail's favorite number is "+str(num))
```

```
Ali's favorite number is 3
Ahmed's favorite number is 5
Usman's favorite number is 7
Sami's favorite number is 9
Sohail's favorite number is 11
```

Exercise 6.3: Glossary.

```
In [ ]: glossary={
            'list':'A list is a collection which is ordered and changeable. Allows duplicat
            'tuple':'A tuple is a collection which is ordered and unchangeable. Allows dupl
            'dictionary':'A dictionary is a collection which is unordered, changeable and i
            'set':'A set is a collection which is unordered and unindexed. No duplicate mem
            'string':'A string is a collection of one or more characters put in a single qu
        }

        word='list'
        print(word.title()+": "+glossary[word])

        word='tuple'
        print(word.title()+": "+glossary[word])

        word='dictionary'
        print(word.title()+": "+glossary[word])

        word='set'
        print(word.title()+": "+glossary[word])

        word='string'
        print(word.title()+": "+glossary[word])
```

```
List: A list is a collection which is ordered and changeable. Allows duplicate mem
bers.
Tuple: A tuple is a collection which is ordered and unchangeable. Allows duplicate
members.
Dictionary: A dictionary is a collection which is unordered, changeable and indexe
d. No duplicate members.
Set: A set is a collection which is unordered and unindexed. No duplicate members.
String: A string is a collection of one or more characters put in a single quote,
double quote or triple quote.
```

Exercise 6.4: Glossary 2.

```
In [ ]: glossary={
            'list':'A list is a collection which is ordered and changeable. Allows duplicat
            'tuple':'A tuple is a collection which is ordered and unchangeable. Allows dupl
            'dictionary':'A dictionary is a collection which is unordered, changeable and i
            'set':'A set is a collection which is unordered and unindexed. No duplicate mem
            'string':'A string is a collection of one or more characters put in a single qu
            'key':'A key is a value that is used to access a specific item in a dictionary.
            'value':'A value is a piece of data that is associated with a key in a dictiona
            'item':'An item is a key-value pair in a dictionary.',
            'conditional test':'A conditional test is a comparison between two values.',
            'float':'A float is a numerical value with a decimal component.',
            'integer':'An integer is a numerical value with no decimal component.'
        }

        for word, meaning in glossary.items():
            print(word.title()+": "+meaning)
```

List: A list is a collection which is ordered and changeable. Allows duplicate members.
Tuple: A tuple is a collection which is ordered and unchangeable. Allows duplicate members.
Dictionary: A dictionary is a collection which is unordered, changeable and indexed. No duplicate members.
Set: A set is a collection which is unordered and unindexed. No duplicate members.
String: A string is a collection of one or more characters put in a single quote, double quote or triple quote.
Key: A key is a value that is used to access a specific item in a dictionary.
Value: A value is a piece of data that is associated with a key in a dictionary.
Item: An item is a key-value pair in a dictionary.
Conditional Test: A conditional test is a comparison between two values.
Float: A float is a numerical value with a decimal component.
Integer: An integer is a numerical value with no decimal component.

Exercise 6.5: Rivers.

In [ ]:
```python
rivers={
    'nile':'egypt',
    'amazon':'brazil',
    'mississippi':'united states',
    'indus':'pakistan',
    'yangtze':'china',
    'ganges':'india',
    'mekong':'vietnam',
    'ob':'russia'
}

for river, country in rivers.items():
    print("The "+river.title()+" runs through "+country.title()+".")

print("\nThe rivers in this dataset are:")
for river in rivers.keys():
    print(river.title())

print("\nThe countries in this dataset are:")
for country in rivers.values():
    print(country.title())
```

```
The Nile runs through Egypt.
The Amazon runs through Brazil.
The Mississippi runs through United States.
The Indus runs through Pakistan.
The Yangtze runs through China.
The Ganges runs through India.
The Mekong runs through Vietnam.
The Ob runs through Russia.

The rivers in this dataset are:
Nile
Amazon
Mississippi
Indus
Yangtze
Ganges
Mekong
Ob

The countries in this dataset are:
Egypt
Brazil
United States
Pakistan
China
India
Vietnam
Russia
```

Exercise 6.6: Polling.

```python
In [ ]: favoriteLanguages={
            'ali':'python',
            'ahmed':'c',
            'usman':'java',
            'sami':'c++',
            'sohail':'c#'
        }

        for name, language in favoriteLanguages.items():
            print(name.title()+"'s favorite language is "+language.title()+".")

        print("\n")
        coders=['ali','ahmed','usman','sami','sohail','hassan','umer','bilal','zain','ali']
        for coder in coders:
            if coder in favoriteLanguages.keys():
                print("Thank you for taking the poll, "+coder.title()+"!")
            else:
                print(coder.title()+", please take our poll!")
```

```
Ali's favorite language is Python.
Ahmed's favorite language is C.
Usman's favorite language is Java.
Sami's favorite language is C++.
Sohail's favorite language is C#.


Thank you for taking the poll, Ali!
Thank you for taking the poll, Ahmed!
Thank you for taking the poll, Usman!
Thank you for taking the poll, Sami!
Thank you for taking the poll, Sohail!
Hassan, please take our poll!
Umer, please take our poll!
Bilal, please take our poll!
Zain, please take our poll!
Thank you for taking the poll, Ali!
```

Exercise 6.7: People.

```
In [ ]: people=[]

person={
    'firstName':'Muhammad',
    'lastName':'Ali',
    'age':22,
    'city':'Karachi'
}
people.append(person)

person={
    'firstName':'Muhammad',
    'lastName':'Ahmed',
    'age':23,
    'city':'Lahore'
}
people.append(person)

person={
    'firstName':'Abdul',
    'lastName':'Ali',
    'age':24,
    'city':'Islamabad'
}
people.append(person)

for person in people:
    name=f"{person['firstName'].title()} {person['lastName'].title()}"
    age=person['age']
    city=person['city'].title()

    print(name+", of "+city+", is "+str(age)+" years old.")
```

Muhammad Ali, of Karachi, is 22 years old.
Muhammad Ahmed, of Lahore, is 23 years old.
Abdul Ali, of Islamabad, is 24 years old.

Exercise 6.8: Pets.

```
In [ ]:   pets=[]

          pet={
              'animal type':'dog',
              'name':'willie',
              'owner':'harry',
              'weight':'25',
              'eats':'meat'
          }
          pets.append(pet)

          pet={
              'animal type':'cat',
              'name':'luna',
              'owner':'ahmed',
              'weight':'15',
              'eats':'fish'
          }
          pets.append(pet)

          pet={
              'animal type':'fish',
              'name':'nemo',
              'owner':'ali',
              'weight':'5',
              'eats':'algae'
          }
          pets.append(pet)

          for pet in pets:
              print(f"\nInformation regarding {pet['name'].title()}:")
              for key, value in pet.items():
                  print(f"\t{key.title()}: {value.title()}")
```

```
Information regarding Willie:
        Animal Type: Dog
        Name: Willie
        Owner: Harry
        Weight: 25
        Eats: Meat

Information regarding Luna:
        Animal Type: Cat
        Name: Luna
        Owner: Ahmed
        Weight: 15
        Eats: Fish

Information regarding Nemo:
        Animal Type: Fish
        Name: Nemo
        Owner: Ali
        Weight: 5
        Eats: Algae
```

Exercise 6.9: Favorite Places.

```python
In [ ]:  favoritePlaces={
             'ali':['lahore','karachi','islamabad'],
             'ahmed':['peshawar','quetta','multan'],
             'usman':['sialkot','faisalabad','gujranwala'],
             'sami':['hyderabad','sukkur','larkana']
         }

         for name, places in favoritePlaces.items():
             print(name.title()+"'s favorite places are:")
             for place in places:
                 print("\t"+place.title())
             print("")
```

```
Ali's favorite places are:
        Lahore
        Karachi
        Islamabad

Ahmed's favorite places are:
        Peshawar
        Quetta
        Multan

Usman's favorite places are:
        Sialkot
        Faisalabad
        Gujranwala

Sami's favorite places are:
        Hyderabad
        Sukkur
        Larkana
```

Exercise 6.10: Favorite Numbers.

In [ ]:
```python
favoriteNumbers={
    'ali':[3,5,7,9,11],
    'ahmed':[13,15,17,19,21],
    'usman':[23,25,27,29,31],
    'sami':[33,35,37,39,41]
}

for name, numbers in favoriteNumbers.items():
    print(name.title()+"'s favorite numbers are:")
    for number in numbers:
        print("\t"+str(number))
    print("")
```

```
Ali's favorite numbers are:
        3
        5
        7
        9
        11

Ahmed's favorite numbers are:
        13
        15
        17
        19
        21

Usman's favorite numbers are:
        23
        25
        27
        29
        31

Sami's favorite numbers are:
        33
        35
        37
        39
        41
```

Exercise 6.11: Cities.

```python
In [ ]: cities={
            'karachi':{
                'country':'pakistan',
                'population':'14.91 million',
                'fact':'Karachi is the sixth largest city in the world by city population.'
            },
            'lahore':{
                'country':'pakistan',
                'population':'11.13 million',
                'fact':'Lahore is the second largest city in Pakistan.'
            },
            'islamabad':{
                'country':'pakistan',
                'population':'1.015 million',
                'fact':'Islamabad is the capital city of Pakistan.'
            }
        }

        for city, info in cities.items():
            country=info['country'].title()
            population=info['population']
            fact=info['fact']

            print(city.title()+" is in "+country+", has a population of "+population+".")
```

```
    print("A fact about "+city.title()+" is: "+fact)
    print("")
```

Karachi is in Pakistan, has a population of 14.91 million.
A fact about Karachi is: Karachi is the sixth largest city in the world by city po
pulation.

Lahore is in Pakistan, has a population of 11.13 million.
A fact about Lahore is: Lahore is the second largest city in Pakistan.

Islamabad is in Pakistan, has a population of 1.015 million.
A fact about Islamabad is: Islamabad is the capital city of Pakistan.