**DICTIONARIES**

Exercise 1

Write a program that stores in a variable the dictionary {'Euro':'€', 'Dollar':'$', 'Yen':'¥'}, asks the user for a currency and displays its symbol or a warning message if the currency is not in the dictionary.

currencies = {'Euro':'€', 'Dollar':'$', 'Yen':'¥'}  
currency = input("Enter a currency: ")  
print(currencies.get(currency.title(), "Currency is missing."))

or

currencies = {'Euro':'€', 'Dollar':'$', 'Yen':'¥'}  
currency = input("Enter a currency: ")  
if currency.title() in currencies:  
 print(currencies[currency.title()])  
else:  
 print("The currency is missing.")

Exercise 2

Write a program that asks the user for his name, age, address and telephone number and stores it in a dictionary. It should then display the message <name> is <age> years old, lives at <address> and his phone number is <phone>.

name = input('What is your name? ')  
age = input('How old are you? ')  
address = input('What is your address? ')  
phone = input('What is your phone number? ')  
person = {'name': name, 'age': age, 'address': address, 'phone': phone}  
print(person['name'], 'is', person['age'], 'years old, lives at', person['address'], 'and your phone number is', person['phone'])

Exercise 3

Write a program that stores in a dictionary the prices of the fruits in the table, asks the user for a fruit, a number of kilos and displays the price of that number of kilos of fruit. If the fruit is not in the dictionary it should display a message informing about it.

Fruit Price

Banana 1.35

Apple 0.80

Pear 0.85

Orange 0.70

fruits = {'Banana':1.35, 'Apple':0.8, 'Pear':0.85, 'Orange':0.7}  
fruit = input('What fruit do you want? ').title()  
kg = float(input('How many kilos? '))  
if fruit in fruits:  
 print(kg, 'kilos of', fruit, 'cost', fruits[fruit]\*kg, '€')  
else:  
 print("Sorry, fruit", fruit, "is not available.")

Exercise 4

Write a program that asks for a date in dd/mm/yyyy format and displays the same date in the format: <month> dd, yyyy where <month> is the name of the month.

months = {1:'January', 2:'February', 3:'March', 4:'April', 5:'May', 6:'June', 7:'July', 8:'August', 9:'September', 10:'October', 11:'November', 12:'December'}  
date = input('Enter a date in dd/mm/yyyy format: ')  
date = date.split('/')  
print(months[int(date[1])]+ ' '+ date[0], ','+ ' ' +date[2])

Exercise 5

Write a program that stores the dictionary with the credits of the subjects of a course {'Mathematics': 6, 'Physics': 4, 'Chemistry': 5} and then displays the credits of each subject in the format <subject> has <credits> credits, where <subject> is each of the subjects of the course, and <credits> are its credits. At the end it should also show the total number of credits for the course.

course = {'Mathematics': 6, 'Physics': 4, 'Chemistry': 5}  
total\_credits = 0  
for subject, credits in course.items():  
 print(subject, 'has', credits, 'credits')  
 total\_credits += credits  
print('Total number of course credits: ', total\_credits)

Exercise 6

Write a program that creates an empty dictionary and fills it with information about a person (e.g. name, age, gender, telephone, e-mail, etc.) that is requested from the user. Each time a new piece of information is added, the contents of the dictionary must be printed.

person = {}  
more = True  
while more:  
 key = input('What data do you want to enter? ')  
 value = input(key + ': ')  
 person[key] = value  
 print(person)  
 more = input('Do you want to add more information (Yes/No)? ') == "Yes"

Exercise 7

Write a program that creates a dictionary simulating a shopping cart. The program should ask for the item and its price and add the pair to the dictionary, until the user decides to finish. Then the shopping list and the total cost should be displayed on the screen, with the following format

Shopping list

Item 1 Price

Item 2 Price

Item 3 Price

... ...

Total Cost

basket = {}  
more = True  
while more:  
 item = input('Enter an item: ')  
 price = float(input('Enter the price of ' + item + ': '))  
 basket[item] = price  
 more = input('Do you want to add items to the list (Yes/No)? ') == "Yes"  
cost = 0  
print('Shopping list')  
for item, price in basket.items():  
 print(item, '\t', price)  
 cost += price  
print('Total cost: ', cost)

Exercise 8

Write a program that manages the outstanding invoices of a company. The invoices will be stored in a dictionary where the key of each invoice will be the invoice number and the value will be the invoice cost. The program must ask the user if he wants to add a new invoice, pay an existing one or terminate. If you want to add a new invoice you will be asked for the invoice number and its cost and it will be added to the dictionary. If an invoice is to be paid, the user will be asked for the invoice number and it will be removed from the dictionary. After each operation the program should display on the screen the amount collected so far and the amount still to be collected.

invoices = {}  
collected = 0  
pending = 0  
more = ''  
while more != 'T':  
 if more == 'A':  
 key = input('Enter invoice number: ')  
 cost = float(input('Enter the cost of the invoice: '))  
 invoices[key] = cost  
 pending += cost  
 if more == 'P':  
 key = input('Enter the number of the invoice to be paid: ')  
 cost = invoices.pop(key, 0)  
 collected += cost  
 pending -= cost  
 print('Collected:', collected)  
 print('Pending collection: ', pending)  
 more = input('Do you want to add a new invoice (A), pay it (P) or terminate (T)? ')