Exercise 1

Entrée [1]:

```
infos = {
    'first_name': '',
    'last_name':'',
    'age':'',
    'number':'',
    'address': ''
}

for key in infos.keys():
    value = input('enter {}'.format(key))
    infos[key] = value

if int(infos['age']) > 21:
    print("you're over 21")

print(infos)
```

```
enter first_nametheo
enter last_namenataf
enter age22
enter number058
enter address33 rue pierre
{'first_name': 'theo', 'last_name': 'nataf', 'age': '22', 'number': '0
58', 'address': '33 rue pierre'}
```

A bit more improved

Entrée [2]:

```
infos = {
    'first_name': '',
    'last_name':'',
    'age':0,
    'number':0,
    'address': ''
}

for key in infos.keys():
    value = input('enter {}'.format(key))
    if value.isdigit():
        value = int(value)
    infos[key] = value

if int(infos['age']) > 21:
    print("you're over 21")

print(infos)
```

```
enter first_nametheo
enter last_namenataf
enter age22
enter number0897208
enter addresshjiqsfhl
you're over 21
{'first_name': 'theo', 'last_name': 'nataf', 'age': 22, 'number': 8972
08, 'address': 'hjiqsfhl'}
```

Exercise 2

Entrée [5]:

```
capitals = {
    'France': 'Paris',
    'USA': 'Washington D.C',
    'Israel': 'Jerusalem',
    'Spain': 'Madrid'
}

for key, value in capitals.items():
    print('{} is the capital of {}'.format(key, value))

for value in capitals.values():
    print(value)

for key in capitals.keys():
    print(key)
```

```
France is the capital of Paris
USA is the capital of Washington D.C
Israel is the capital of Jerusalem
Spain is the capital of Madrid
Paris
Washington D.C
Jerusalem
Madrid
France
USA
Israel
Spain
```

Exercise 3

Entrée [9]:

```
people = {
    'Mark':32,
    'Nick': 45,
    'Jacob': 22,
    'Marcel': 67
}

while True:
    someone = input('- Enter a name or write q to quit')
    if someone in people.keys():
        print('{} is {}'.format(someone, people[someone]))
    elif someone == 'q':
        break
    else:
        print('that person does not exist in our Database \nwe are going to create h
        age = int(input('what is his age ?\n'))
        people[someone] = age
        print('{} was added'.format(someone))

print(people)
```

```
- Enter a name or write q to quitq
{'Mark': 32, 'Nick': 45, 'Jacob': 22, 'Marcel': 67}
```

With the bonus

Entrée [15]:

```
ple = {
'Mark':32,
'Nick': 45,
'Jacob': 22,
'Marcel': 67


e True:
someone = input('- Enter a name, an age or enter Q to quit').capitalize()
if someone.isdigit():
    for key, value in people.items():
        if value == int(someone):
            print('{} is {}'.format(key, value))
else:
    if someone in people.keys():
        print('{} is {}'.format(someone, people[someone]))
    elif someone == 'Q':
        break
    else:
        print('that person does not exist in our Database \nwe are going to create h
        age = int(input('what is his age ?'))
        people[someone] = age
        print('{} was added'.format(someone))

nt(people)
```

```
- Enter a name, an age or enter Q to quitQ
{'Mark': 32, 'Nick': 45, 'Jacob': 22, 'Marcel': 67}
```

Exercise 4

Entrée [18]:

```
groceries = { "banana": 0, "pear": 0, "apple": 0, "orange": 0 }

stock = { "banana": 6, "pear": 2, "apple": 0, "orange": 32 }
prices = { "banana": 4, "pear": 2.8, "apple": 2, "orange": 1.5 }

total = 0
for key in groceries.keys():
    groceries[key] = int(input('how many {}s do you want ?'.format(key)))
    total += prices[key]*groceries[key]

print('you have to pay {}$'.format(total))
```

```
how many bananas do you want ?1
how many pears do you want ?1
how many apples do you want ?1
how many oranges do you want ?1
you have to pay 10.3$
```

BONUS

Entrée [5]:

```
groceries = { "banana": 0, "pear": 0, "apple": 0, "orange": 0 }

stock = { "banana": 6, "pear": 2, "apple": 0, "orange": 32 }
prices = { "banana": 4, "pear": 2.8, "apple": 2, "orange": 1.5 }

total = 0
for key in groceries.keys():
    groceries[key] = int(input('how many {}s do you want ?'.format(key)))
    while groceries[key] > stock[key]:
        print('we only have {} {} in stock you have to choose less'.format(stock[key
        groceries[key] = int(input('how many {}s do you want ?'.format(key)))
    stock[key] -= groceries[key]
    total += prices[key]*groceries[key]

print('you have to pay {}$'.format(total))
```

```
how many bananas do you want ?2
how many pears do you want ?2
how many apples do you want ?2
we only have 0 apple in stock you have to choose less
how many apples do you want ?2
we only have 0 apple in stock you have to choose less
how many apples do you want ?0
how many oranges do you want ?2
you have to pay 16.6$
```

Exercise 5

Entrée [21]:

```
sentence = input('what is your sentence ? ')
letters = {}

for letter in sentence:
    if letter in letters.keys():
        letters[letter] += 1
    else:
        letters[letter] = 1

print(letters)
```

```
what is your sentence ? jksdqfj sdfjksmd fjdsmkf jisodfjiqosdjf jiosdq
gji dsgjioqzjgiomvsdnlnvuera
{'j': 11, 'k': 3, 's': 9, 'd': 9, 'q': 4, 'f': 6, ' ': 5, 'm': 3, 'i':
6, 'o': 5, 'g': 3, 'z': 1, 'v': 2, 'n': 2, 'l': 1, 'u': 1, 'e': 1,
'r': 1, 'a': 1}
```

Exercise 6

Part 1

Entrée [25]:

```
network = [
    {
        'username': 'David',
        'password': '12345',
        'email': 'david@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Mark',
        'password': '23412',
        'email': 'mark@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Jacob',
        'password': '23821',
        'email': 'jacob@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Joseph',
        'password': '62797',
        'email': 'joseph@super.com',
        'message_received':[],
        'message_sent': []
    }
]

username = input('Username ?')
password = input('Password ?')
connected_user = {}
found_user = False

for user in network:
    if user['username'] == username:
        found_user = True
        for i in range(3):
            if user['password'] == password:
                connected_user = user
                break
            else:
                password = input('Password Incorrect \nEnter Password Again\n')

if not found_user:
    print("we didn't find any user matching those credentials")

print(connected_user)
```

```
Username ?David
Password ?12345
{'username': 'David', 'password': '12345', 'email': 'david@super.com',
'message_received': [], 'message_sent': []}
```

Bonus

Entrée [27]:

```
network = [
    {
        'username': 'David',
        'password': '12345',
        'email': 'david@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Mark',
        'password': '23412',
        'email': 'mark@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Jacob',
        'password': '23821',
        'email': 'jacob@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Joseph',
        'password': '62797',
        'email': 'joseph@super.com',
        'message_received':[],
        'message_sent': []
    }
]

username = input('Username ?')
password = input('Password ?')
connected_user = {}
found_user = False

for user in network:
    if user['username'] == username:
        found_user = True
        for i in range(3):
            if user['password'] == password:
                connected_user = user
                break
            else:
                password = input('Password Incorrect \nEnter Password Again\n')

if not found_user:
    answer = int(input("""we didn't find any user matching those credentials do you
        username: {}, password: {}?
            (1) yes
            (2) no""".format(username, password)))
    if answer == 1:
        email = input('what is your email address ?')
        new_user = {
            'username': username,
            'password': password,
            'email': email,
            'message_received':[],
            'message_sent': []
```

```
        }
        network.append(new_user)
        connected_user = new_user


print(connected_user)
```

```
Username ?theo
Password ?12345
we didn't find any user matching those credentials do you want to regi
ster with those credentials
        username: theo, password: 12345?
            (1) yes
            (2) no1
what is your email address ?tdh.nataf@gmail.com
{'username': 'theo', 'password': '12345', 'email': 'tdh.nataf@gmail.co
m', 'message_received': [], 'message_sent': []}
```

Part 2

Entrée [4]:

```
network = [
    {
        'username': 'David',
        'password': '12345',
        'email': 'david@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Mark',
        'password': '23412',
        'email': 'mark@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Jacob',
        'password': '23821',
        'email': 'jacob@super.com',
        'message_received':[],
        'message_sent': []
    },
    {
        'username': 'Joseph',
        'password': '62797',
        'email': 'joseph@super.com',
        'message_received':[],
        'message_sent': []
    }
]

username = input('Username ?')
password = input('Password ?')
connected_user = {}
found_user = False

for user in network:
    if user['username'] == username:
        found_user = True
        for i in range(3):
            if user['password'] == password:
                connected_user = user
                break
            else:
                password = input('Password Incorrect \nEnter Password Again\n')

if not found_user:
    answer = int(input("""we didn't find any user matching those credentials do you
        username: {}, password: {}?
            (1) yes
            (2) no""".format(username, password)))
    if answer == 1:
        email = input('what is your email address ?')
        new_user = {
            'username': username,
            'password': password,
            'email': email,
            'message_received':[],
            'message_sent': []
```

```
        }
        network.append(new_user)
        connected_user = new_user


print(connected_user)

if connected_user:
    choice = input('what do you want to do ?\n\t(1)Send a message\n\t(2)Read my mess
    if choice == '1':
        send_to = input('who do you want to send it to ?')
        for user in network:
            if user['email']==send_to or user['username']==send_to:
                content = input('what is the content of your message')
                message = {
                    'From': connected_user['email'],
                    'To': user['email'],
                    'content':content
                    }
                user['message_received'].append(message)
                connected_user['message_sent'].append(message)
                break
    if choice == '2':
        for message in connected_user['message_received']:
            print(message)

print(network)
```

```
Username ?theo
Password ?12345
we didn't find any user matching those credentials do you want to regi
ster with those credentials
        username: theo, password: 12345?
            (1) yes
            (2) no1
what is your email address ?theo@super.com
{'username': 'theo', 'password': '12345', 'email': 'theo@super.com',
'message_received': [], 'message_sent': []}
what do you want to do ?
        (1)Send a message
        (2)Read my messages1
who do you want to send it to ?David
what is the content of your messagehello david
[{'username': 'David', 'password': '12345', 'email': 'david@super.co
m', 'message_received': [{'From': 'theo@super.com', 'To': 'david@supe
r.com', 'content': 'hello david'}], 'message_sent': []}, {'username':
'Mark', 'password': '23412', 'email': 'mark@super.com', 'message_recei
ved': [], 'message_sent': []}, {'username': 'Jacob', 'password': '2382
1', 'email': 'jacob@super.com', 'message_received': [], 'message_sen
t': []}, {'username': 'Joseph', 'password': '62797', 'email': 'joseph@
super.com', 'message_received': [], 'message_sent': []}, {'username':
'theo', 'password': '12345', 'email': 'theo@super.com', 'message_recei
ved': [], 'message_sent': [{'From': 'theo@super.com', 'To': 'david@sup
er.com', 'content': 'hello david'}]}]
```

Entrée [ ]: