

PYTHON LAB 3- MODULE CREATION

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Part (a)

In-Memory Storage:

```
#lambda functions
users=[]
new_user= lambda name, email: {'name': name, 'email': email}
insert_user= lambda new: users.append(new)
fetch_users= lambda : users
```

The above are the necessary lambda functions for the program. The data of a new user is added to the users list which is initially empty (when the module is run for the first time).

User Registration Function:

```
#generate the qr code
def generate_code(name,email,file_name):
    data=name+","+email
    img=qrcode.make(data)
    img.save(f'{file_name}.png')
```

First, the qr code is generated in the above function. User enters the data which includes their name, email and the desires file name for the qr code png file.

```
#read qr code and update list with user data
def RegisterUserFromSmartScan(file_name):
    img=cv2.imread(f'{file_name}.png')
    det=cv2.QRCodeDetector()
    val, pts, st_code=det.detectAndDecode(img)
    us_email=val.split(',')
    if (len(us_email)==2):
        new=new_user(us_email[0],us_email[1])
        insert_user(new)
        return fetch_users()
    else:
        return "Invalid code"
```

In the RegisterUserFromSmartScan function, the name of the png file with the qr code is given as input. The qr code is read, data of the user is inserted in the 'users' list. The function returns the 'users' list which has data of all users.

Implementation of module:

```
from smartscan_registration_module import generate_code, fetch_users, RegisterUserFromSmartScan
```

```
generate_code('marita','abc@gmail.com','temp1')  
generate_code("glory","xyz@gmail.com",'temp2')
```

```
RegisterUserFromSmartScan('temp1')  
RegisterUserFromSmartScan('temp2')
```

```
[{'name': 'marita', 'email': 'abc@gmail.com'},  
 {'name': 'glory', 'email': 'xyz@gmail.com'}]
```

```
generate_code("maria" ,"boby,123@gmail.com",'temp3')  
RegisterUserFromSmartScan('temp3')
```

```
'Invalid code'
```

```
fetch_users()
```

```
[{'name': 'marita', 'email': 'abc@gmail.com'},  
 {'name': 'glory', 'email': 'xyz@gmail.com'}]
```