CS3052 - Computer Security

Continuous assessment

Report - Protection of information based on sensitivity and privilege levels

Index number: 190290U

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1. Introduction

This report provides a description on the program designed for the continuous assessment 'Protection of information based on sensitivity and privilege levels' under the module CS3052 - Computer Security. The implementation of the system carried out using the python programming languages and some useful libraries of the python programming language.

The program was written to carry out medical data processing tasks. There are two comma-separated values (csv) files named 'user_records.csv' and 'data_records.csv'. The program will write or read these files based on the necessity of the users who run the programs. There are three user types:

- Patient
- Administration staff member
- Nurse (Support staff of doctors)
- Doctor

'Data_records.csv' file contains data records that are obtained due to an encounter with a patient. Each record can have values under these attributes/columns in the csv file.

- Patient name
- Date of the entry
- Patient age at the time of recording
- Patient's sickness details
- Patient's drug prescriptions
- Patient's lab prescriptions
- Sensitivity level of the record

Since some patients' data records can be sensitive even to be viewed by the people other than the doctors who examine the patients, there each record has a sensitivity level associated with it. In the 'user_records.csv' file, all the users of the system are maintained. The columns or attributes of the 'user_records.csv' are:

- Username
- Password
- User type

When a user gets saved in this file the password will be first **hashed** and then recorded for security purposes. Also, the password should be:

- Minimum 8 characters.
- The alphabet must be between [a-z]
- At least one alphabet should be of Upper Case [A-Z]
- At least 1 number or digit between [0-9].
- At least 1 character from [_ or @ or $ or # or *]

2. Designing the program

The sensitivity value for a data record can be of any value out of these:

- 0 – Lower sensitivity level
- 1 – Medium sensitivity level
- 2 – Higher sensitivity level

Each user type will also have an integer value to identify his/her type. This user type value decides the access level for each user as defined below.

User type value (saved in user_records.csv)	**User type**	**Access level for 'data_records.csv' file**
0	Patient	Can't read or write
1	Administration staff member	Can only read data records which has sensitivity level 0
2	Nurse	Can read and write data records which has sensitivity level 0 or 1
3	Doctor	Can read and write data records which has sensitivity level 0 or 1 or 2 (All sensitivity levels)

When the program gets executed, the user can choose option to add a new user (save a user in the user_records.csv file). A certain type of user can only add a new user of type less than the user type of the creating user. The below table shows that logic.

User type value (saved in user_records.csv)	**User type**	**user types that can be created**
0	Patient	Can't create any type of users
1	Administration staff member	Only patients (user type value=0) and Administration staff member (user type value =1).
2	Nurse	Only patients (user type value=0), Administration staff members (user type value =1) and Nurses (user type value=2)

3	Doctor	Can create any type of user. Patients, Administration staff members, nurses, and doctors

3. The program in execution

When the program gets executed, the user must log in to the system by entering the username and the password. Then user can choose whether to,

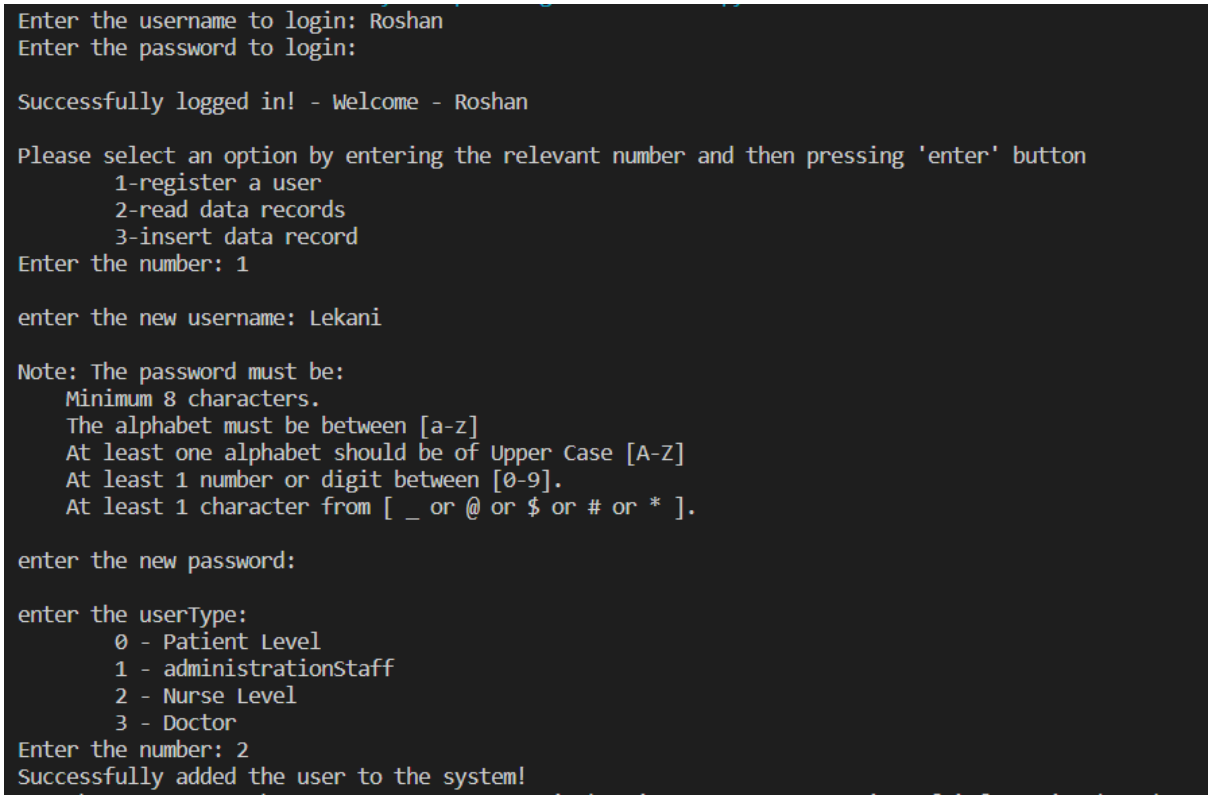
- Add a new user
- Read data records
- Insert a data record

When the user specifies a certain option, the accessing of the files (data_records.csv, and user_records.csv) happens based on the logic described in section 2 of this document. Important screen captures of specific actions are shown below.

Note: Some username and passwords are listed below;

username	password	type
Roshan	ww	3 (Doctor)
Lekani	password1@A	2 (Nurse)
adminStaffMember1	Password1@A	1 (Admin staff member)
Patient1	password1@A	0 (Patient)

3.1 User with type 3 (Doctor) adds a new user with type 2 (Nurse)



3.2 User with type 2 (Nurse) tries to add a new user with type 3

This should not happen based on the implementation logic described in section 2 of this document.

```
Enter the username to login: Himal
Enter the password to login:

Successfully logged in! - Welcome - Himal

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 1

enter the new username: Lekani2

Note: The password must be:
    Minimum 8 characters.
    The alphabet must be between [a-z]
    At least one alphabet should be of Upper Case [A-Z]
    At least 1 number or digit between [0-9].
    At least 1 character from [ _ or @ or $ or # or * ].

enter the new password:

enter the userType:
        0 - Patient Level
        1 - administrationStaff
        2 - Nurse Level
        3 - Doctor
Enter the number: 3
Sorry you cant create a user with a higher priviledge level than you!
Retry?
        enter 1 if you want to retry
        enter 0 if you want to cancel:
```

3.3 Patient trying to read user records

Not allowed based on the implementation logic described in section 2 of this document.

```
Enter the username to login: patient1
Enter the password to login:

Successfully logged in! - Welcome - patient1

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 2
Sorry, patients don't have access to read the data!
```

3.4 A Doctor trying to read data records

The program, should print all the records (any sensitivity level is accessible for doctor based on the logics described in section 2 of this document)

```
Enter the username to login: Roshan
Enter the password to login:

Successfully logged in! - Welcome - Roshan

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 2
```

patientName	dateOfEntry	ageAtEnry	sickness Details	drugPrescriptions	labTestPrescriptions	sensitivityLevel
patient1	2015-06-11 10:48:44.856503	14	Lorem ipsum dolor sit amet, labore et dolore magna aliqua	Excepteur sint occaecat cupidatat non proident	sunt in culpa qui officia anim id est laborum	0
patient1	2022-06-15 10:48:44.856503	21	Excepteur non proident, sunt in culpa qui officia anim id est laborum	Nemo enim quia voluptas sit aspern	quaerat voluptatem. Ut enim adm	0
patient2	2022-07-10 10:48:44.856503	19	Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia	sdsd,sdj sdkv	sdfbdfb	1
patient1	2022-07-16 10:48:44.856503	21	cough, fever, and vomitting generally at morning	sdsd,sdj sdkv	sdfbdfb	2
patient2	2022-07-29 10:48:44.856503	19	cough only	dfhngf,sdghdgnjsdkv	sdfbddfb	2

3.5 A Nurse trying to read data records

The program should print only the records with sensitivity level 0 or 1 (based on the implementation logic described in section 2 of this document).

```
Enter the username to login: Himal
Enter the password to login:

Successfully logged in! - Welcome - Himal

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 2
```

patientName	dateOfEntry	ageAtEnry	sicknessDetails	drugPrescriptions	labTestPrescriptions	sensitivityLevel
patient1	2015-06-11 10:48:44.856503	14	Lorem ipsum dolor sit amet, labore et dolore magna aliqua	Excepteur sint occaecat cupidatat non proident	sunt in culpa qui officia anim id est laborum	0
patient1	2022-06-15 10:48:44.856503	21	Excepteur non proident, sunt in culpa qui officia anim id est laborum	Nemo enim quia voluptas sit aspern	quaerat voluptatem. Ut enim adm	0
patient2	2022-07-10 10:48:44.856503	19	Excepteur sint occaecat cupidatat non proident, sunt in culpa	sdsd,sdjsdkv	sdfbdfb	1

3.6 An administration staff member trying to read data records

The program should print only the records with sensitivity level 0 (based on the implementation logic described in section 2 of this document).

```
Enter the username to login: adminStaffMember1
Enter the password to login:

Successfully logged in! - Welcome - adminStaffMember1

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 2
+-----------+-----------+----------+----------+----------+----------+----------+
| patientNa | dateOfEnt | ageAtEnr | sickness | drugPres | labTestP | sensitiv |
|    me     |    ry     |    y     | Details  | cription | rescript | ityLevel |
|           |           |          |          |    s     |   ions   |          |
+===========+===========+==========+==========+==========+==========+==========+
| patient1  | 2015-06-1 | 14       | Lorem    | Excepteu | sunt in  | 0        |
|           | 1 10:48:4 |          | ipsum    | r sint   | culpa    |          |
|           | 4.856503  |          | dolor    | occaecat | qui      |          |
|           |           |          | sit      | cupidata | officia  |          |
|           |           |          | amet,    | t non    | anim id  |          |
|           |           |          | labore   | proident | est      |          |
|           |           |          | et       |          | laborum  |          |
|           |           |          | dolore   |          |          |          |
|           |           |          | magna    |          |          |          |
|           |           |          | aliqua   |          |          |          |
+-----------+-----------+----------+----------+----------+----------+----------+
| patient1  | 2022-06-1 | 21       | Excepteu | Nemo     | quaerat  | 0        |
|           | 5 10:48:4 |          | r non pr | enim     | voluptat |          |
|           | 4.856503  |          | oident,  | quia     | em. Ut   |          |
|           |           |          | sunt in  | voluptas | enim ad  |          |
|           |           |          | culpa    | sit      | m        |          |
|           |           |          | qui      | aspern   |          |          |
|           |           |          | officia  |          |          |          |
|           |           |          | anim id  |          |          |          |
|           |           |          | est      |          |          |          |
|           |           |          | laborum  |          |          |          |
+-----------+-----------+----------+----------+----------+----------+----------+
```

3.7 A patient tries to insert a data record

The program should not allow this based on the implementation logic described in section 2 of this document.

```
Enter the username to login: patient3
Enter the password to login:

Successfully logged in! - Welcome - patient3

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 3
Sorry, patients don't have access to insert data!
```

3.8 An admin staff member tries to insert a data record

The program should not allow this based on the implementation logic described in section 2 of this document.

```
Enter the username to login: adminStaffMember1
Enter the password to login:

Successfully logged in! - Welcome - adminStaffMember1

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 3
Sorry, Administration staff don't have access to insert data!
```

3.9 A nurse tries to insert a data record with sensitivity level 1

The program should allow this based on the implementation logic described in section 2 of this document. (A nurse can enter a data record of sensitivity level 1 or 0)

```
Enter the username to login: Lekani
Enter the password to login:

Successfully logged in! - Welcome - Lekani

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 3
enter a patient name: patient1
enter a patient's current age (as an integer): 14
enter sickness details: hjsdbvhjbsdv, sdkjvbksv, sdlvlsdv
enter drug prescriptions: hsbdvkbsdv skvuksdvb, dvkjbbsjkdv, sdvkbskdjvbsdv
enter lab prescriptions: sdvsdvsdv, sdvbdvllsdvlln, sdvbsd
enter sensitivity level (0, 1 or 2=highly sensitive): 1
The data successfully recorded!
```

Note:

When selecting the patient, the user must type the username of the patient. If there is no such user found, systems tell it to the user. Therefore, the user can either retry (if the username of the patient was misspelled earlier) or else create a new patient with the previously typed username and then add the data record using the newly created patient. Example given below.

```
Enter the username to login: Lekani
Enter the password to login:

Successfully logged in! - Welcome - Lekani

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 3
enter a patient name: some-name
enter a patient's current age (as an integer): 14
enter sickness details: sdv
enter drug prescriptions: sdv
enter lab prescriptions: sdv
enter sensitivity level (0, 1 or 2=highly sensitive): 1
Sorry, there is no patient with that username. Please add the patient first
```

3.10 A nurse tries to insert a data record with sensitivity level 2

If a nurse tries to insert a data record with sensitivity level of 2 (which is not allowed according to the implementation logic), the system tells the user that is not allowed similar to the

```
Enter the username to login: Lekani
Enter the password to login:

Successfully logged in! - Welcome - Lekani

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 3
enter a patient name: patient1
enter a patient's current age (as an integer): 12
enter sickness details: fd
enter drug prescriptions: dfbdb
enter lab prescriptions: dfb
enter sensitivity level (0, 1 or 2=highly sensitive): 2
Sorry, you don't have access to insert a data record with that sensitivity level!
Retry?
        enter 1 if you want to retry
        enter 0 if you want to cancel:
```

3.11 A doctor tries to insert a data record with sensitivity level 2

This action is allowed by the system according to the implementation logic.

```
Enter the username to login: Roshan
Enter the password to login:

Successfully logged in! - Welcome - Roshan

Please select an option by entering the relevant number and then pressing 'enter' button
        1-register a user
        2-read data records
        3-insert data record
Enter the number: 3
enter a patient name: patient1
enter a patient's current age (as an integer): 68
enter sickness details: sdhjsdk, sdjklbnvs, sdjkbvs
enter drug prescriptions: sdkhvbksjdv, sdv
enter lab prescriptions: fksdknsdvlsd, sdnvsil
enter sensitivity level (0, 1 or 2=highly sensitive): 2
The data successfully recorded!
```

4. Code

```
import csv
import hashlib
import getpass
from texttable import Texttable
import datetime

from urllib3 import Retry
user_records_file_name = "user_records.csv"
data_records_file_name = "data_records.csv"

# usernames and pwds
# Roshan => ww => 3 (Doctor)
# Lekani => password1@A => 2 (Nurse)
# adminStaffMember1 => Password1@A => 1 (Admin staff member)
# patient1 => password1@A => 0 (patient)

#sensitivity levels for each record - 0, 1, 2 (if value if high =>
sensitivity is high)

# userTypes (also defines the priviledge levels):
# 0 - Patient - Can't read, write to data_records file
# 1 - administrationStaff - Can only read data records which has
sensitivity level 0
# 2 - Nurse - Can read and write data records which has sensitivity
level 0 or 1
# 3 - Doctor - Can read and write data records which has sensitivity
level 0 or 1 or 2

def isValidPassword(pwd):

    # Minimum 8 characters.
    # The alphabet must be between [a-z]
    # At least one alphabet should be of Upper Case [A-Z]
    # At least 1 number or digit between [0-9].
    # At least 1 character from [ _ or @ or $ or # or * ].
```

```
    l, u, p, d = 0, 0, 0, 0
    if (len(pwd) >= 8):
        for i in pwd:

            # counting lowercase alphabets
            if (i.islower()):
                l+=1

            # counting uppercase alphabets
            if (i.isupper()):
                u+=1

            # counting digits
            if (i.isdigit()):
                d+=1

            # counting the mentioned special characters
            if(i=='@'or i=='$' or i=='_' or i=='#' or i=='*'):
                p+=1
    if (l>=1 and u>=1 and p>=1 and d>=1 and l+p+u+d==len(pwd)):
        return True
    else:
        return False

def readFromDataRecords(userType=0):

    # initializing the column-titles and rows list
    rows = []
    with open(data_records_file_name, 'r') as csvfile:
        # creating a csv reader object
        csvreader = csv.reader(csvfile)

        # extracting field names through first row
        rows = [next(csvreader)]

        # extracting each data row one by one
        for row in csvreader:
            if (len(row) == 0):
                continue
            sensitivityLevelOfRecord = int(row[6])
            if (sensitivityLevelOfRecord < userType):
                rows.append(row)

        t = Texttable()
        t.add_rows(rows)
        print(t.draw())
        return rows

def writeToDataRecords(patientName, dateOfEntry, ageAtEnry,
sicknessDetails, drugPrescriptions, labTestPrescriptions,
sensitivityLevel):
    #checking whether there is a patient with the given patientName
    isFound = False
    with open(user_records_file_name, 'r') as csvfile:
        csvreader = csv.reader(csvfile)
```

```
        fields = next(csvreader)
        for row in csvreader:
            if (len(row) == 0):
                continue
            if(row[0] == patientName and int(row[2]) == 0):
                isFound = True
                break

    if(isFound == False): return -1 # No patient found with the
given patientName

    # writing to csv file
    with open(data_records_file_name, 'a') as csvfile:
        # creating a csv writer object
        csvwriter = csv.writer(csvfile)
        # writing the data row
        csvwriter.writerow([patientName, dateOfEntry, ageAtEnry,
sicknessDetails, drugPrescriptions, labTestPrescriptions,
sensitivityLevel])

def registerUser(username, pwd, userType=0):

    #checking whether there is a user with existing username
    fields = []
    rows = []
    with open(user_records_file_name, 'r') as csvfile:
        csvreader = csv.reader(csvfile)
        fields = next(csvreader)
        for row in csvreader:
            if (len(row) == 0):
                continue
            if(row[0] == username):
                return -1 #return if a user with the given username
is found

    #password hashing
    hashedPwd = hashlib.md5(pwd.encode()).hexdigest()

    # writing to csv file
    with open(user_records_file_name, 'a') as csvfile:
        # creating a csv writer object
        csvwriter = csv.writer(csvfile)
        # writing the data row
        csvwriter.writerow([username, hashedPwd, userType])

def readFromUserFile():
    # initializing the column-titles and rows list
    fields = []
    rows = []
    with open(user_records_file_name, 'r') as csvfile:
        # creating a csv reader object
        csvreader = csv.reader(csvfile)

        # extracting field names through first row
        fields = next(csvreader)
```

```
        # extracting each data row one by one
        for row in csvreader:
            if (len(row) == 0):
                continue
            rows.append(row)

    # printing the field names
    print('Field names are:' + ', '.join(field for field in fields))

    # printing the content
    col_width = max(len(word) for row in rows for word in row) + 2
# padding
    print("".join(word.ljust(col_width) for word in ["username",
"pwd", "userType"]))
    for row in rows:
        print("".join(word.ljust(col_width) for word in row))

def checkForUser(loggedUsername, loggedPassword):
    # initializing the column-titles and rows list
    fields = []
    rows = []
    with open(user_records_file_name, 'r') as csvfile:
        # creating a csv reader object
        csvreader = csv.reader(csvfile)

        # extracting field names through first row
        fields = next(csvreader)

        # extracting each data row one by one
        for row in csvreader:
            if (len(row) == 0):
                continue
            if(row[0] == loggedUsername and row[1] ==
hashlib.md5(loggedPassword.encode()).hexdigest()):
                return {"username": loggedUsername, "userType":
int(row[2])}
        return False

loggedUsername = str(input("Enter the username to login: ")).strip()
loggedPassword = getpass.getpass("Enter the password to login:
").strip()

loggeduser = checkForUser(loggedUsername, loggedPassword)
if(loggeduser == False):
    print("Wrong username or password!")
else:
    print("\nSuccessfully logged in! - Welcome - " +
loggeduser["username"])
    print("\nPlease select an option by entering the relevant number
and then pressing 'enter' button\n\t1-register a user\n\t2-read data
records\n\t3-insert data record")
    option = int(input("Enter the number: "))

    if(option == 1): # register user option
        if(loggeduser["userType"] == 0): # patient
            print("Sorry, patients cant create a user!")
```

```
        else:
            runLoop = True
            while runLoop:
                newUsername = input("\nenter the new username:
").strip()

                print("""\nNote: The password must be:
    Minimum 8 characters.
    The alphabet must be between [a-z]
    At least one alphabet should be of Upper Case [A-Z]
    At least 1 number or digit between [0-9].
    At least 1 character from [ _ or @ or $ or # or * ].""")

                newPassword = getpass.getpass("\nenter the new
password: ").strip()

                if (isValidPassword(newPassword) == False ):
                    print("Invalid password!")
                    retry = int(input("Retry? \n\tenter 1 if you
want to retry\n\tenter 0 if you want to cancel: \n").strip())
                    if(retry == 1):
                        continue
                    else:
                        print("GoodBye!")
                        runLoop = False
                        break
                else:
                    print("\nenter the userType: \n\t0 - Patient
Level\n\t1 - administrationStaff\n\t2 - Nurse Level\n\t3 - Doctor")
                    newUserType = int(input("Enter the number:
").strip())
                    if(newUserType > loggeduser['userType']):
                        print("Sorry you cant create a user with a
higher priviledge level than you!")
                        retry = int(input("Retry? \n\tenter 1 if you
want to retry\n\tenter 0 if you want to cancel: \n").strip())
                        if(retry == 1):
                            continue
                        else:
                            print("GoodBye!")
                            runLoop = False
                            break
                    else:
                        result = registerUser(newUsername,
newPassword, newUserType)
                        if(result == -1):
                            print("Sorry the given username is
already taken!")
                            retry = int(input("Retry? \n\tenter 1 if
you want to retry\n\tenter 0 if you want to cancel: \n").strip())
                            if(retry == 1):
                                continue
                            else:
                                print("GoodBye!")
                                runLoop = False
```

```
                                break
                        else:
                            print("Successfully added the user to
the system!")
                            runLoop = False

    if(option == 2): #read data records

        if(loggeduser['userType'] == 0): # patient
            print("Sorry, patients don't have access to read the
data!")

        else: result = readFromDataRecords(loggeduser['userType'])

    if(option == 3): #insert a data record

        if (loggeduser['userType'] == 0): # patient
            print("Sorry, patients don't have access to insert
data!")
        elif (loggeduser['userType'] == 1): # Administration staff
member
            print("Sorry, Administration staff don't have access to
insert data!")

        else: # logged user is either a nurse or a doctor at this
point
            runLoop = True
            while runLoop:
                newRecordPatientName = str(input("enter a patient
name: ").strip())
                try:
                    newRecordAgeAtEntry = int(input("enter a
patient's current age (as an integer): ").strip())
                except:
                    print("Inavlid value for age!")
                    runLoop = False
                    break
                if (newRecordAgeAtEntry == ""): newRecordAgeAtEntry
= "-"

                newRecordSicknessDetails = str(input("enter sickness
details: ").strip())
                if (newRecordSicknessDetails == ""):
newRecordSicknessDetails = "-"


                newDrugPrescriptions = str(input("enter drug
prescriptions: ").strip())
                if (newDrugPrescriptions == ""):
newDrugPrescriptions = "-"

                newLabPrescriptions = str(input("enter lab
prescriptions: ").strip())
                if (newLabPrescriptions == ""): newLabPrescriptions
= "-"
```

```
                try:
                    newRecordSensitivityLevel = int(input("enter
sensitivity level (0, 1 or 2=highly sensitive): ").strip())
                    if(newRecordSensitivityLevel <
loggeduser["userType"]):
                        result =
writeToDataRecords(newRecordPatientName, datetime.datetime.now()
,newRecordAgeAtEntry, newRecordSicknessDetails,
newDrugPrescriptions, newLabPrescriptions,
newRecordSensitivityLevel)

                        if (result == -1):
                            print("Sorry, there is no patient with
that username. Please add the patient first")
                            runLoop = False
                            break
                        else:
                            print("The data successfully recorded!")
                            runLoop = False
                            break
                    else:
                        print("Sorry, you don't have access to
insert a data record with that sensitivity level!")
                        retry = int(input("Retry? \n\tenter 1 if you
want to retry\n\tenter 0 if you want to cancel: \n").strip())
                        if(retry == 1):
                            continue
                        else:
                            print("GoodBye!")
                            runLoop = False
                            break
                except:
                    print("Invalid input!")
                    retry = int(input("Retry? \n\tenter 1 if you
want to retry\n\tenter 0 if you want to cancel: \n").strip())
                    if(retry == 1):
                        continue
                    else:
                        print("GoodBye!")
                        runLoop = False
                        break
```

5. Configuration file

```
username,pwd,userType

Roshan,ad5748016654da87125db86f4227ea3,3


Himal,08a4415e9d594ff960030b921d42b91e,2


patient1,c483f6ce851c9ecd9fb835ff7551737c,0
```

```
patient2,c483f6ce851c9ecd9fb835ff7551737c,0

adminStaffMember1,77c96c3ffcc4fed468f5bc0c38c0a283,1

Lekani,77c96c3ffcc4fed468f5bc0c38c0a283,2

patient3,77c96c3ffcc4fed468f5bc0c38c0a283,0
```

6. Data records file

```
patientName,dateOfEntry,ageAtEnry,sicknessDetails,drugPrescriptions,
labTestPrescriptions,sensitivityLevel

patient1,2015-06-11 10:48:44.856503,14,"Lorem ipsum dolor sit amet,
labore et dolore magna aliqua",Excepteur sint occaecat cupidatat non
proident,sunt in culpa qui officia anim id est laborum,0

patient1,2022-06-15 10:48:44.856503,21,"Excepteur non proident, sunt
in culpa qui officia anim id est laborum","Nemo enim quia voluptas
sit aspern",quaerat voluptatem. Ut enim ad m,0

patient2,2022-07-10 10:48:44.856503,19,"Excepteur sint occaecat
cupidatat non proident, sunt in culpa qui
officia","sdsd,sdjsdkv",sdfbdfb,1

patient1,2022-07-16 10:48:44.856503,21,"cough, fever, and vomitting
generally at morning","sdsd,sdjsdkv",sdfbdfb,2

patient2,2022-07-29 10:48:44.856503,19,"cough
only","dfhngf,sdghdgnjsdkv",sdfbddfbdfb,2

ww,2022-09-30 10:48:44.856503,21,"cough, fever, and vomitting
generally at morning","sdsd,sdjsdkv",sdfbdfb,2
```

patient1,2022-10-09 18:45:08.597767,25,"sdmkkjs sdckjsd c, sddjsklnv, sdlvnsldnv","ksdbvkbsdvjkb, sdlvnnls, sdlnvsdvnlsv","gurgkehrg, ergnegeg, elrgnlerg",1

patient1,2022-10-09 18:47:57.349563,14,"hjsdbvhjbsdv, sdkjvbksv, sdlvlsdv","hsbdvkbsdv skvuksdvb, dvkjbbsjkdv, sdvkbskdjvbsdv","sdvsdvsdv, sdvbdvllsdvlln, sdvbsd",1

patient1,2022-10-09 19:04:38.004733,68,"sdhjsdk, sdjklbnvs, sdjkbvs","sdkhvbksjdv, sdv","fksdknsdvlsd, sdnvsil",2