**ACADEMIC YEAR: 2020-21**

**PROJECT REPORT ON**

**EMPLOYEE MANAGEMENT SYSTEM**

**ROLL NO.** **:**

**NAME**  **:** **AYANANSHU MOHANTY**

**CLASS**  **:** **XII**

**SUBJECT** **:** **COMPUTER SCIENCE**

**SUB CODE**  **:** **083**

**MOTHER’S PUBLIC SCHOOL**

**BHUBANESWAR**



**BONAFIDE CERTIFICATE**

This is to hereby certify that AYANANSHU MOHANTY of Class XII, Section A, Mother’s Public School, Bhubaneswar with Roll Number: has satisfactorily completed the project in COMPUTER on EMPLOYEE MANAGEMENT SYSTEM in partial fulfilment of AISSCE as prescribed by CBSE in the year 2020 – 2021.

This work was carried out by him under our supervision and guidance.

Principal’s Signature

Teacher’s Signature

|  |  |  |
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**ACKNOWLEDGEMENT**

Apart from the efforts of me, the success of any project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this project.

I express deep sense of gratitude to The Almighty God for giving me strength for the successful completion of the project.

I express my heartfelt gratitude to my parents for constant encouragement while carrying out this project.

I would also like to thank my friends for accompanying me in doing this project and providing valuable insight and suggestions.

I express my deep sense of gratitude to the luminary Principal, Mrs. Poly Patnaik, Mother’s Public School who has been continuously motivating and extending their helping hand to us.

I express my sincere thanks to the Vice Principal, Mrs. Annie Patnaik, Mother’s Public School, for constant encouragement and the guidance provided during this project

My sincere thanks to Mr. Arbinda Pattnaik, Teacher In-charge, A guide, mentor and above all a friend, who critically reviewed my project and helped in solving each and every problem, occurred during implementation of the project

The guidance and support received from all the members who contributed and who are contributing to this project, was vital for the success of the project. I am grateful for their constant support and help.

**PROJECT ON EMPLOYEE MANAGEMENT SYSTEM**

**INTRODUCTION**

Employee Management system is an application that enables users to create and store Employee Records. The application also provides facilities of a database system which enables user to view their information stored in the database. This application is helpful to department of the organization which maintains data of employees related to their organization.

It receives the username and password from the user to log in and register. It keeps the record of user salary, his department of working, his age and also his date of joining. It also divides the organization into two levels for access so that it is easier for the superiors to manipulate the data as per their convenience. It adds a new employee, his salary, department, updates an existing salary, list of employees and his age.

**OBJECTIVES OF THE PROJECT**

The objective of this project is to let the students apply the programming knowledge into a real-world situation/problem and expose the students to how programming skills help in developing good software.

1. Write programs utilizing modern software tools.
2. Apply object-oriented programming principles effectively when developing small to medium sized projects.
3. Write effective procedural code to solve small to medium sized problems.
4. Students will demonstrate a of knowledge in computer science, as exemplified in the areas of systems, theory and software development.
5. Students will demonstrate ability to conduct a research or applied Computer Science project, requiring writing and presentation skills which exemplify scholarly style in computer science.

**PROPOSED SYSTEM**

Today one cannot afford to rely on the fallible human beings to stand against today’s merciless competition where saying “to err is human” is no longer valid, it’s outdated to rationalize your mistake. So, to keep pace with time, to bring about the best result without malfunctioning and greater efficiency and also to replace the unending heaps of files with a much-sophisticated hard disk of the computer one has to use data management software.

Software has become an essential factor for all organizations for higher efficiency and ease the tedious work that data management usually worked with. There is now abundance of software in markets, which have helped in making the organizations work easier and efficiently. Data management initially had to maintain a lot of ledgers, and a lot of paper work had to be done but now software has made their work faster and easier. Now this software only has to be loaded on the computer and work can be done.

This prevents the waste of a lot of time and money. The work becomes fully automated and any information regarding the organization can be obtained by the click of a button. Moreover, this is an era of computers and of automating, thus such an organization gives a better look to the corporation.

**SOURCE CODE**

import random

import mysql.connector

connection\_object=mysql.connector.connect (host="DESKTOP-GGWPEZ4", user="Ayananshu",\

passwd="undergroundSamurai", database="employee\_management")

if connection\_object.is\_connected():

print('Connection was successful')

else:

print("Connection was unsuccessful")

cursor=connection\_object.cursor() #Creates the connection with the SQL Database

def level\_one\_menu(employee\_id,password):

"""

Displays the Level 1 Employee Menu.

"""

print("ACCESS LEVEL 1")

print("")

print("1.VIEW YOUR DETAILS")

print("2.ALTER PERSONAL INFO")

print("3.VIEW EMPLOYEE LIST")

choice=input("Enter your choice: ")

if choice=="1":

view\_your\_details(employee\_id)

elif choice=="2":

alter\_personal\_info(employee\_id)

elif choice=="3":

employee\_list()

else:

print("Sorry, invalid choice, please try again.")

print("")

level\_one\_menu(employee\_id,password)

def level\_two\_menu(employee\_id,password):

"""

Displays the Level 2 Employee Menu.

"""

print("ACCESS LEVEL 2")

print("")

print("1.VIEW YOUR DETAILS")

print("2.VIEW EMPLOYEE LIST")

print("3.VIEW DETAILS OF LEVEL 1 EMPLOYEES")

print("4.REGISTER AN EMPLOYEE")

print("5.ALTER PERSONAL INFO")

print("6.ALTER LEVEL 1 EMPLOYEE INFO")

print("7.DELETE A RECORD OF LEVEL ONE EMPLOYEE")

choice=input("Enter your choice: ")

if choice=="1":

view\_your\_details(employee\_id)

elif choice=="2":

employee\_list()

elif choice=="3":

view\_level\_one\_details()

elif choice=="4":

register\_employee()

elif choice=="5":

alter\_personal\_info(employee\_id)

elif choice=="6":

alter\_level\_one\_info()

elif choice=="7":

delete\_record()

else:

print("Sorry, invalid choice, please try again.")

print("")

level\_two\_menu(employee\_id,password)

def view\_your\_details(employee\_id):

"""

Displays the details of the current user.

"""

cursor.execute("select \* from employee\_info where ID=%s" %(employee\_id,))

data=cursor.fetchall()

print("ID: ", data[0][0])

print("Name: ", data[0][1])

print("Gender: ", data[0][2])

print("Department: ", data[0][3])

print("Access Level: ", data[0][4])

print("Salary: ", data[0][5])

print("Age: ", data[0][6])

print("Date of joining: ", data[0][7])

print("Password: ", data[0][8])

def view\_level\_one\_details():

"""

Displays the details(except password) of all the Level 1 Employees.

\*This function can be accessed by Level 2 Employees only.\*

"""

cursor.execute("select \* from employee\_info where Level\_of\_Access=1")

data=cursor.fetchall()

for i in data:

print("ID: ", i[0])

print("Name: ", i[1])

print("Gender: ", i[2])

print("Department: ", i[3])

print("Access Level: ", i[4])

print("Salary: ", i[5])

print("Age: ", i[6])

print("Date of joining: ", i[7])

print("")

def register\_employee():

"""

Registers the details of a new employee and generates a new password.

(New password is supposed to be used for first time login.

Employees can modify their password after logging in.)

\*This function can be accessed by Level 2 Employees only.\*

"""

emp\_id=input("Enter ID of Employee whose details you want to register: ")

emp\_name=input("Enter Employee Name: ")

emp\_gen=input("Enter Gender: ")

emp\_level="1"

emp\_dept=input("Enter Department: ")

emp\_salary=int(input("Enter Salary: "))

emp\_age=int(input("Enter Age: "))

emp\_doj=int(input("Enter Date of joining (YYYYMMDD): "))

emp\_pas="password"+str(random.randint(10000,99999))

cursor.execute("insert into employee\_info values('{}','{}','{}','{}','{}',{},{},{},'{}')"\

.format(emp\_id,emp\_name,emp\_gen,emp\_dept,emp\_level,emp\_salary,emp\_age,emp\_doj,emp\_pas))

connection\_object.commit()

print("Employee registered successfully with the password:",emp\_pas)

print("")

def alter\_personal\_info(employee\_id):

"""

Allows the user to update their information.

"""

print("1.DEPARTMENT\n2.PASSWORD")

ch=int(input("Enter choice of category to change: "))

if ch==1:

dept=input("Enter new department: ")

cursor.execute("update employee\_info set Department='{}' where ID='{}'"\

.format(dept,employee\_id))

connection\_object.commit()

print("Department changed successfully")

print("")

elif ch==2:

cursor.execute("select \* from employee\_info where ID='{}'".format(employee\_id))

data=cursor.fetchall()

oldpass=data[0][8]

print("Your old password is: ",oldpass)

print("")

change\_password()

def change\_password():

"""

Allows the user to change their password and checks whether the password meets certain criteria.

(Password must be greater than 8 characters in length and must have atleast 1 lowercase character,

1 uppercase character, 1 number, and 1 special character.)

"""

print("PASSWORD NAMING RULES")

print("Password must be greater than 8 characters in length.")

print("""Password must have atleast 1 lowercase character, 1 uppercase character, 1 number,\

and 1 special character.""")

newpass=input("Enter new password: ")

newpass\_undercase=""

newpass\_uppercase=""

newpass\_numbers=""

newpass\_specialchar=""

newpass\_length=len(newpass)

newpass\_error=""

for i in newpass:

if i in "abcdefghijklmnopqrstuvwxyz":

newpass\_undercase=newpass\_undercase+i

elif i in "ABCDEFGHIJKLMNOPQRSTUVWXYZ":

newpass\_uppercase=newpass\_uppercase+i

elif i in "1234567890":

newpass\_numbers=newpass\_numbers+i

else:

newpass\_specialchar=newpass\_specialchar+i

if newpass\_length<8:

newpass\_error=newpass\_error+"1"

if len(newpass\_undercase)==0:

newpass\_error=newpass\_error+"2"

if len(newpass\_uppercase)==0:

newpass\_error=newpass\_error+"3"

if len(newpass\_numbers)==0:

newpass\_error=newpass\_error+"4"

if len(newpass\_specialchar)==0:

newpass\_error=newpass\_error+"5"

if "1" in newpass\_error:

print("Length of the password is too short.")

if "2" in newpass\_error:

print("No lowercase characters are present in the password.")

if "3" in newpass\_error:

print("No uppercase characters are present in the password.")

if "4" in newpass\_error:

print("No numbers are present in the password.")

if "5" in newpass\_error:

print("No special characters are present in the password.")

number\_of\_errors=len(newpass\_error)

if number\_of\_errors>0:

print("INVALID PASSWORD")

print("")

change\_password()

if number\_of\_errors==0:

password\_confirm(newpass)

def password\_confirm(newpass):

"""

Confirms the validity of the new password entered by the user.

"""

newpasscon=input("Confirm new password: ")

if newpass == newpasscon:

cursor.execute("update employee\_info set Password = '{}' where ID='{}'"\

.format(newpass,employee\_id))

connection\_object.commit()

print("Password changed successfully")

print("")

else:

print("Passwords don't match, please try again.")

print("")

password\_confirm(newpass)

def employee\_list():

"""

Displays the Employee ID and Name of all the employees.

"""

cursor.execute("select \* from employee\_info order by Name asc")

data=cursor.fetchall()

print("Employee ID Name")

for i in data:

print(i[0]," ",i[1])

print("")

def alter\_level\_one\_info():

"""

Allows Level 2 Employees to alter the Department and increase Salary of Level 1 Employees.

"""

emp\_id=input("Enter ID of employee whose data you want to change: ")

cursor.execute("select \* from employee\_info where Level\_of\_Access=1")

data=cursor.fetchall()

data\_list=[]

l=len(data)

for i in range(l):

data\_list=data\_list+[data[i][0]]

if emp\_id in data\_list:

print("1.DEPARTMENT\n2.SALARY(10% increment)")

ch=int(input("Enter choice of category to change: "))

if ch==1:

dept=input("Enter new department: ")

cursor.execute("update employee\_info set Department ='{}' where ID='{}'"\

.format(dept,emp\_id))

connection\_object.commit()

print("Department changed successfully.")

print("")

elif ch==2:

cursor.execute("select \* from employee\_info where ID=%s" %(emp\_id,))

emp\_data=cursor.fetchall()

sal=emp\_data[0][5]

sal=int(sal\*110/100)

cursor.execute("update employee\_info set Salary ={} where ID='{}'".format(sal,emp\_id))

connection\_object.commit()

print("Salary increased by 10% successfully. New Salary=",sal)

print("")

else:

print("Invalid ID, please try again.")

alter\_level\_one\_info()

def delete\_record():

"""

Deletes the record of an employee.

\*Can be Accessed by Level 2 Employees only.\*

"""

emp\_id=input("Enter ID of employee whose data you want to delete: ")

cursor.execute("Select ID from employee\_info where Level\_of\_Access=1")

data=cursor.fetchall()

data\_list=[]

l=len(data)

for i in range(l):

data\_list=data\_list+[data[i][0]]

if emp\_id in data\_list:

cursor.execute("delete from employee\_info where ID='{}'".format(emp\_id))

connection\_object.commit()

print("Record of employee deleted successfully")

print("")

else:

print("Invalid ID, please try again.")

delete\_record()

def login():

"""

Displays the Login Page.

"""

login\_error="T"

while login\_error=="T":

print("LOGIN")

employee\_id=int(input("Enter Employee ID: "))

password=input("Enter password: ")

cursor.execute("select \* from employee\_info where ID=%s" %(employee\_id,))

data=cursor.fetchall()

if data==[]:

print("Employee ID does not exist")

print("")

print("")

elif data[0][8]==password:

print("LOGIN SUCCESSFUL")

login\_error="F"

return(data[0][4],employee\_id,password)

else:

print("LOGIN UNSUCCESSFUL")

print("Employee ID and Password do not match")

print("RETRY LOGGING IN")

print("")

print("")

login\_status,employee\_id,password=login()

a="Y"

while a in "Yy":

if login\_status=="1":

level\_one\_menu(employee\_id,password)

elif login\_status=="2":

level\_two\_menu(employee\_id,password)

a=input("Do you want to continue?(Y/N): ")

print("")

while a not in "YyNn":

print("Please enter your choice again.")

print("")

a=input("Do you want to continue?(Y/N): ")

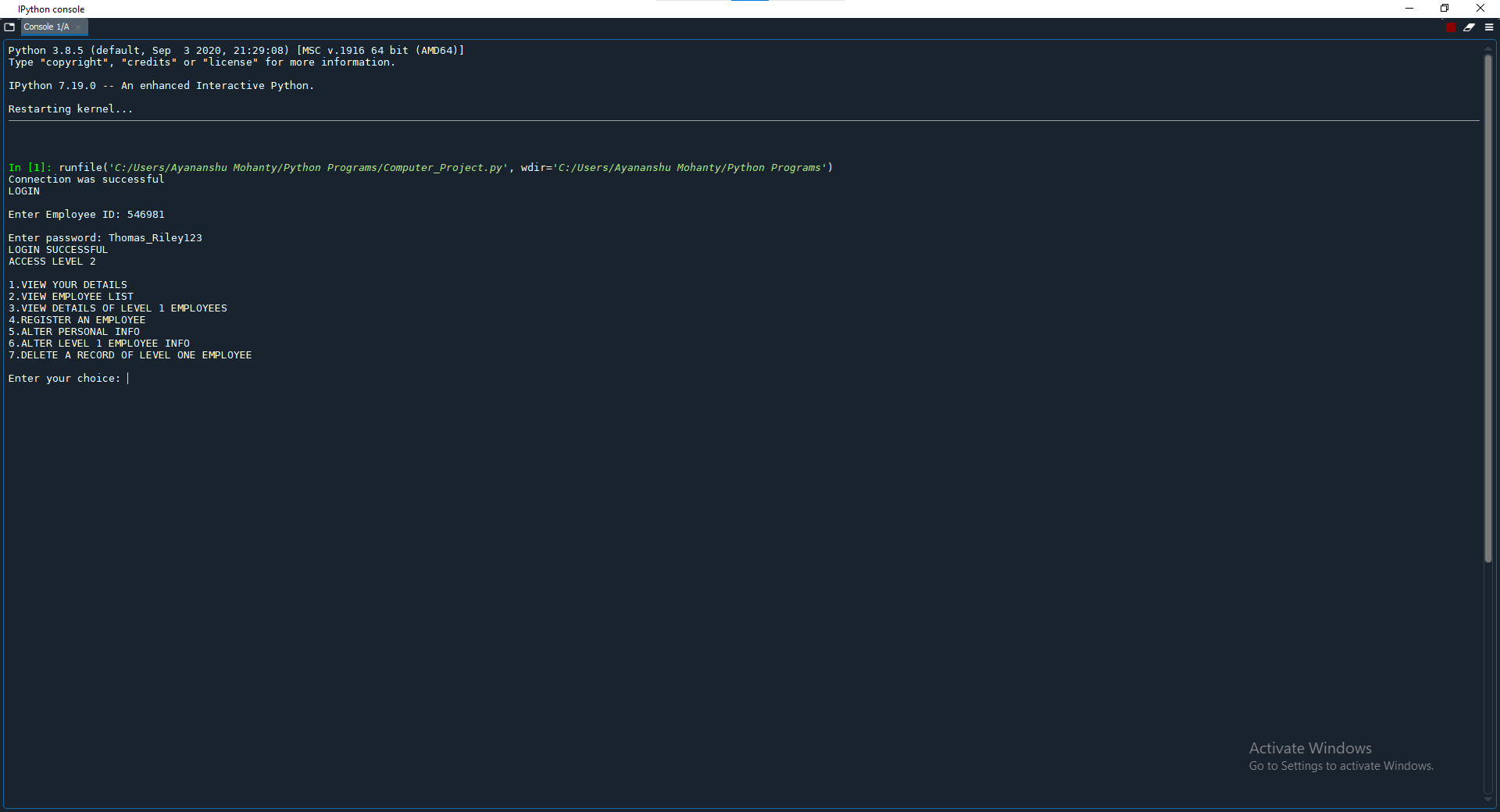
print("")

print("")

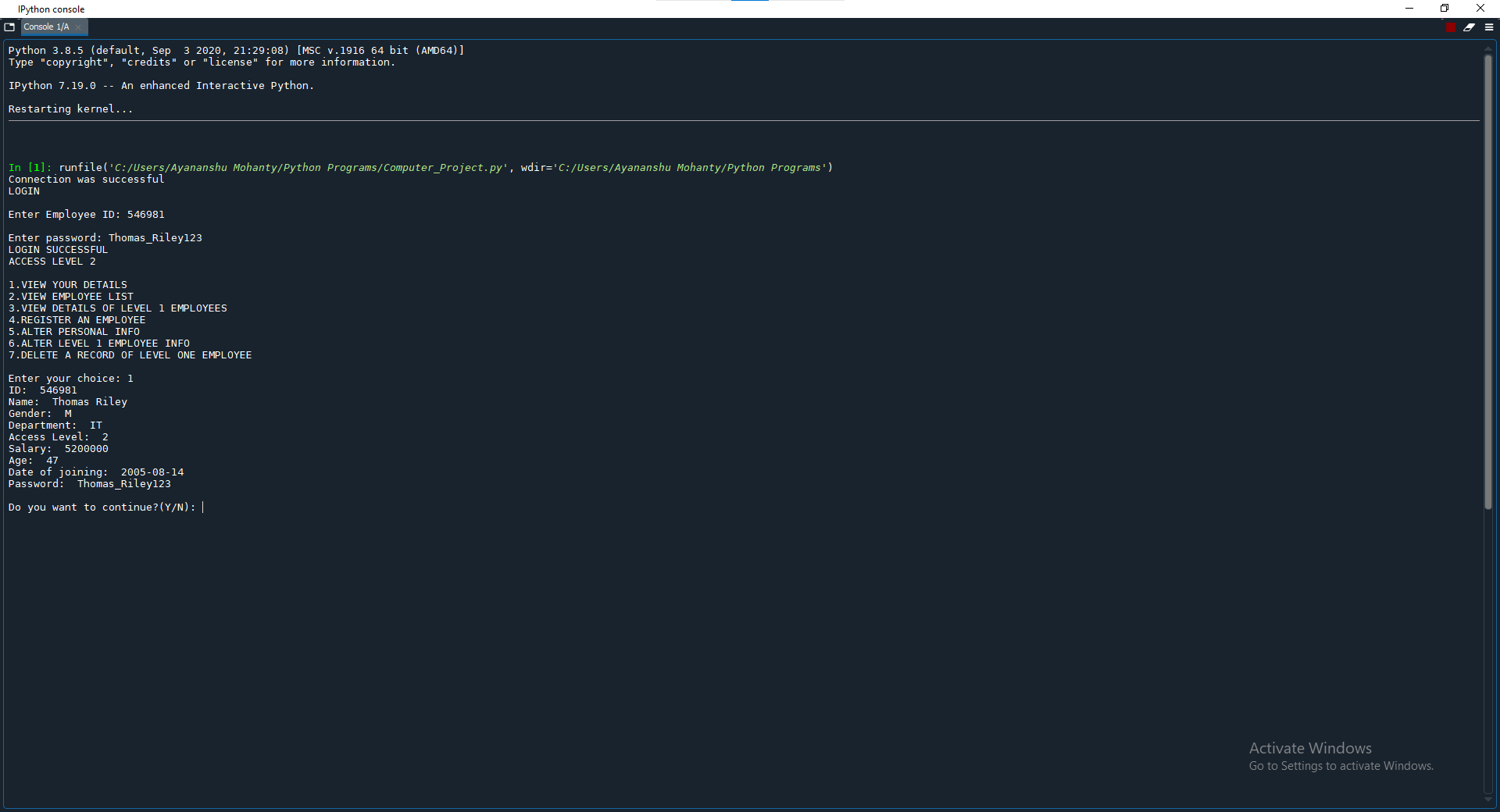
print("THANK YOU FOR VISITING")

**OUTPUT**

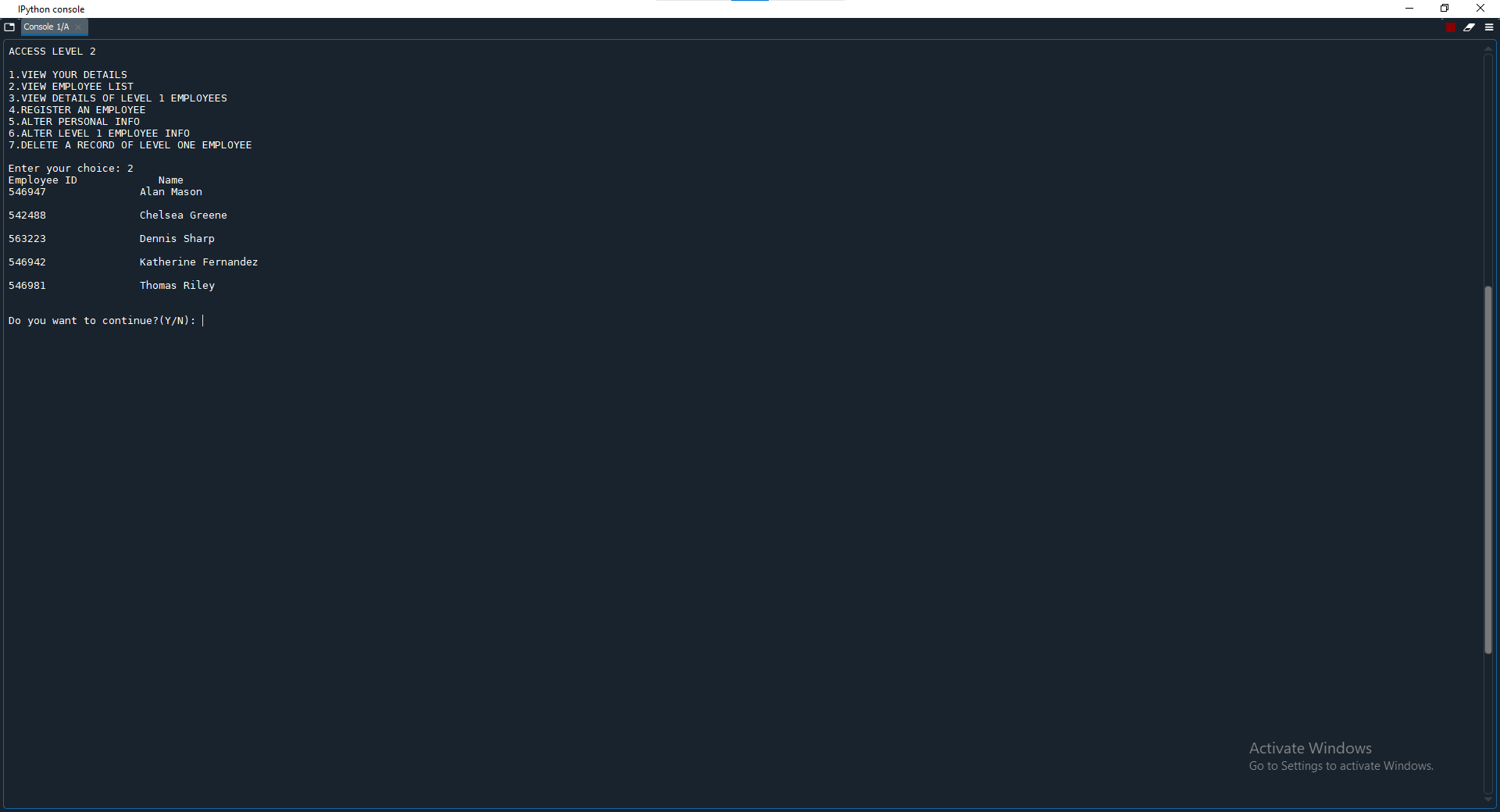
FOR ACCESS LEVEL 2

ACCESS LEVEL 2 LOGIN AND MENU  


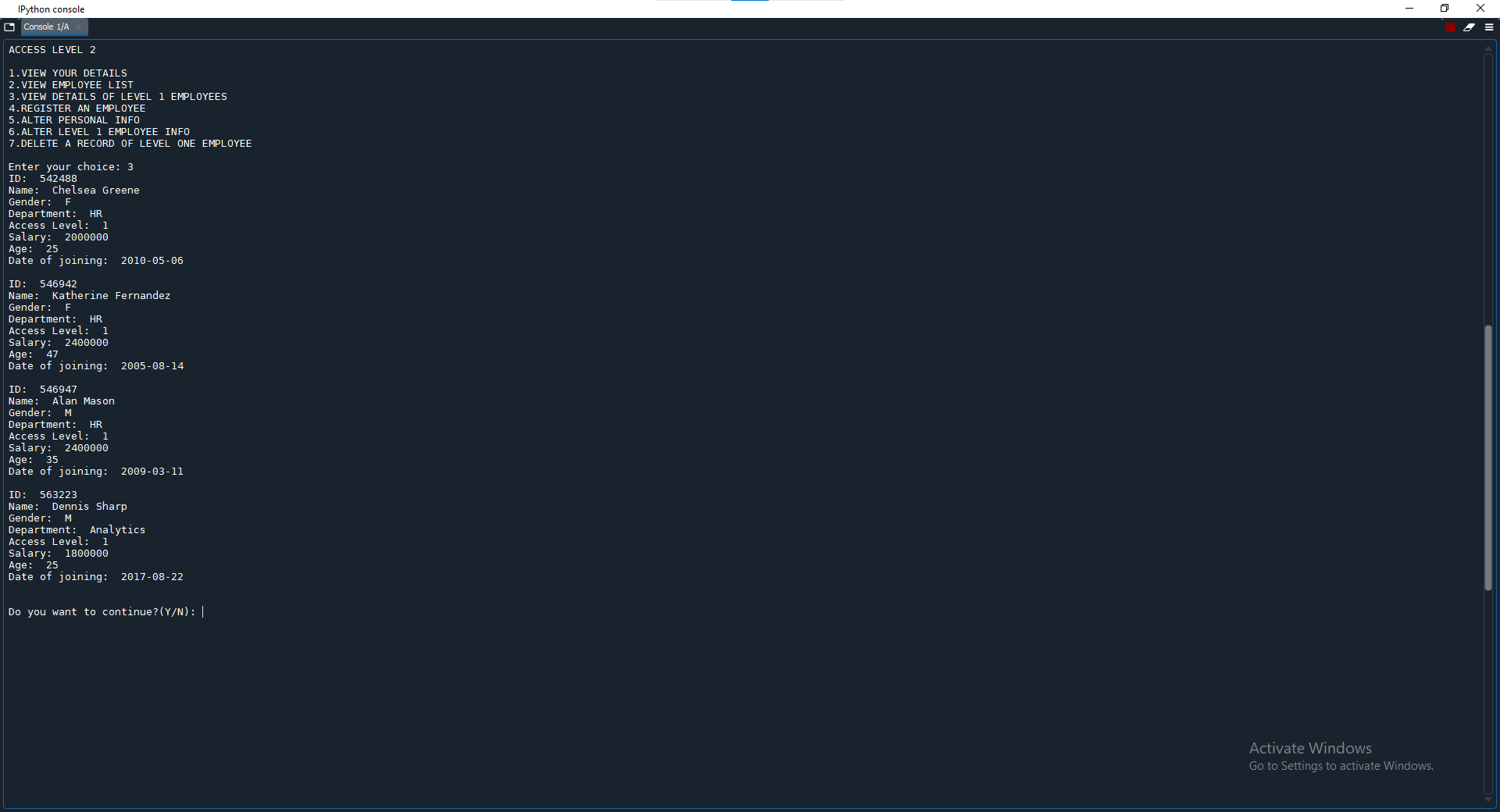
VIEWING OWN DETAILS



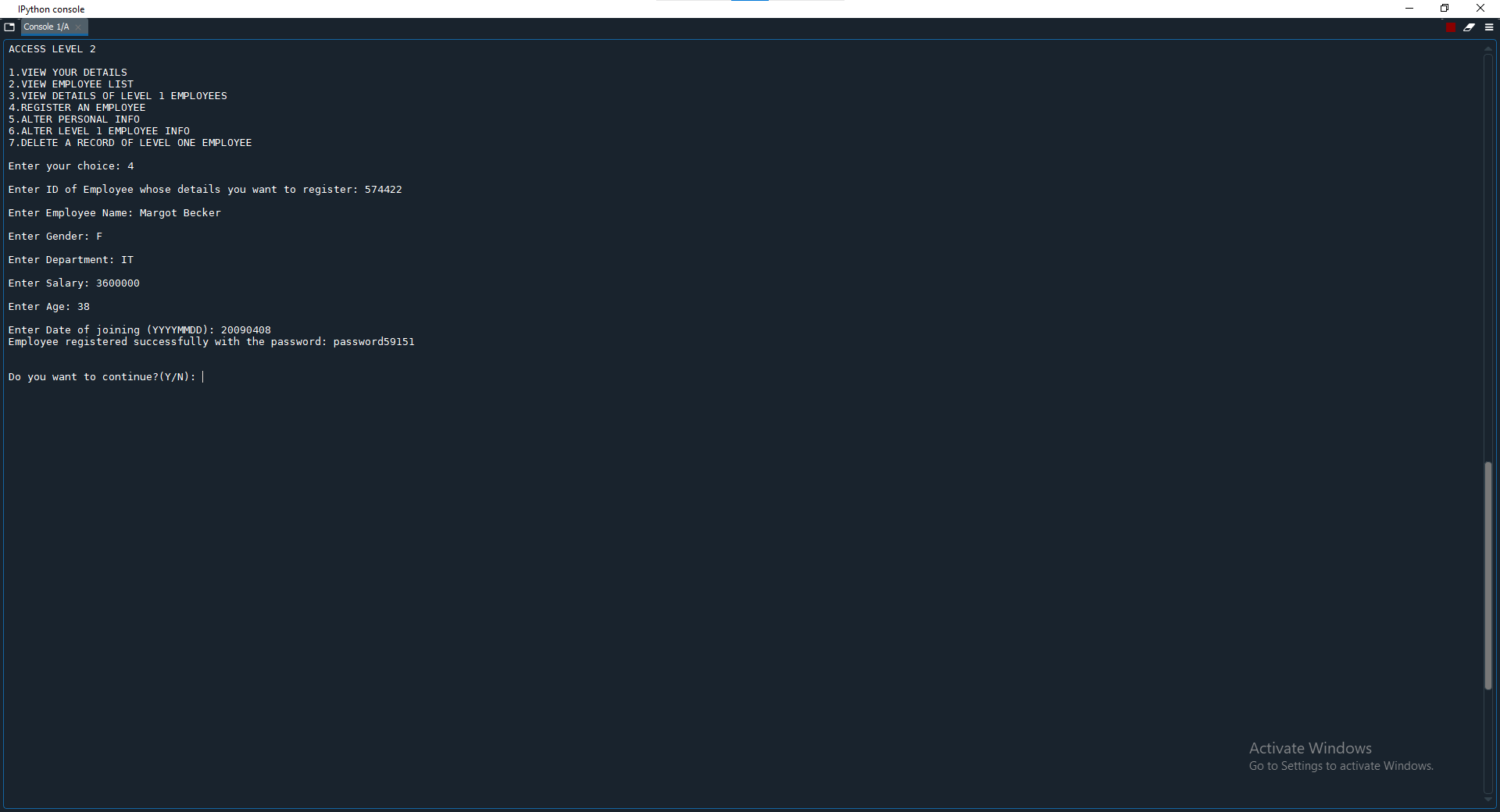
VIEWING EMPLOYEE LIST

VIEWING ALL THE DETAILS OF ACCESS LEVEL 1 EMPLOYEES

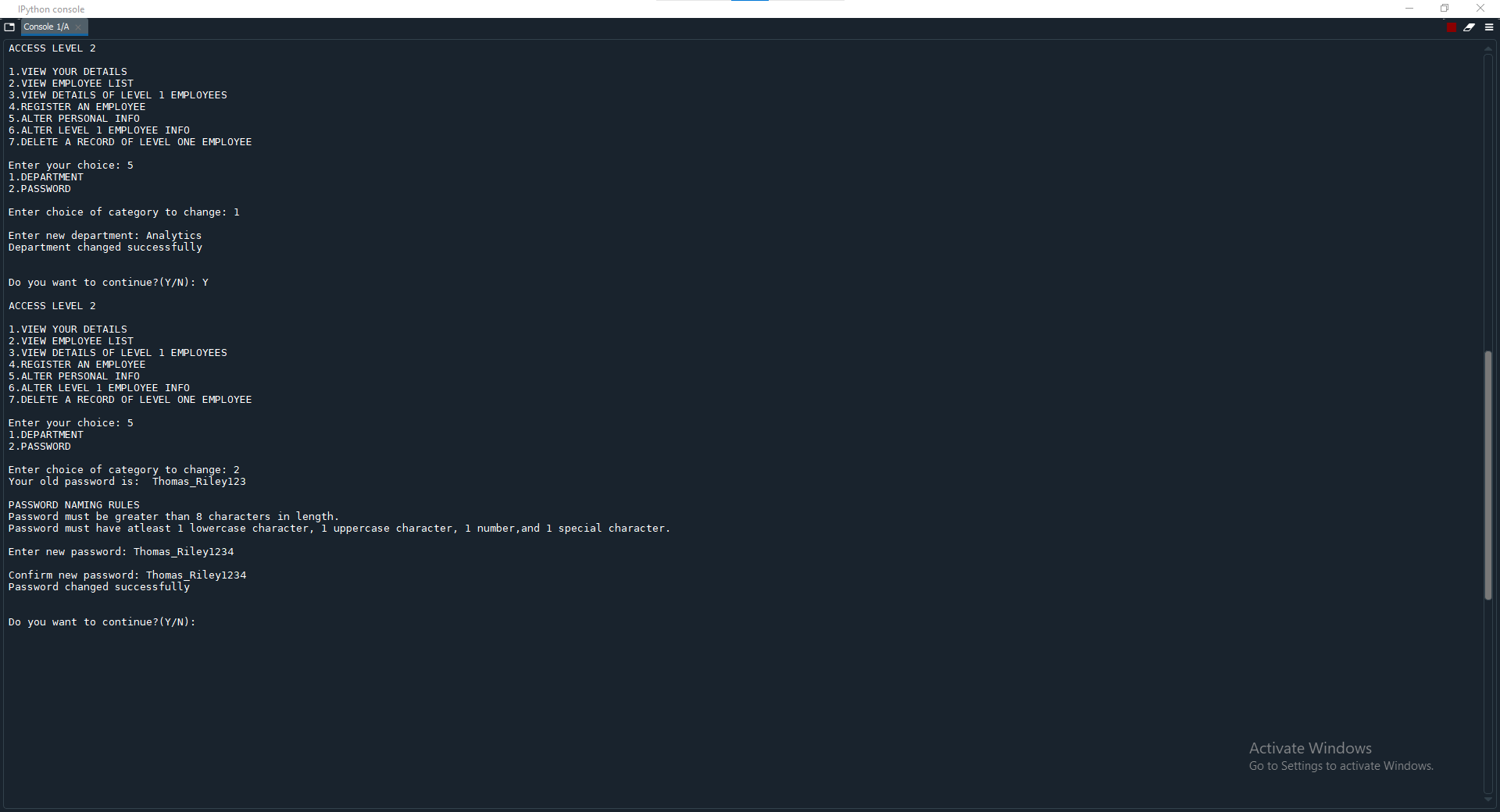
(EXCEPT FOR THEIR PASSWORDS)



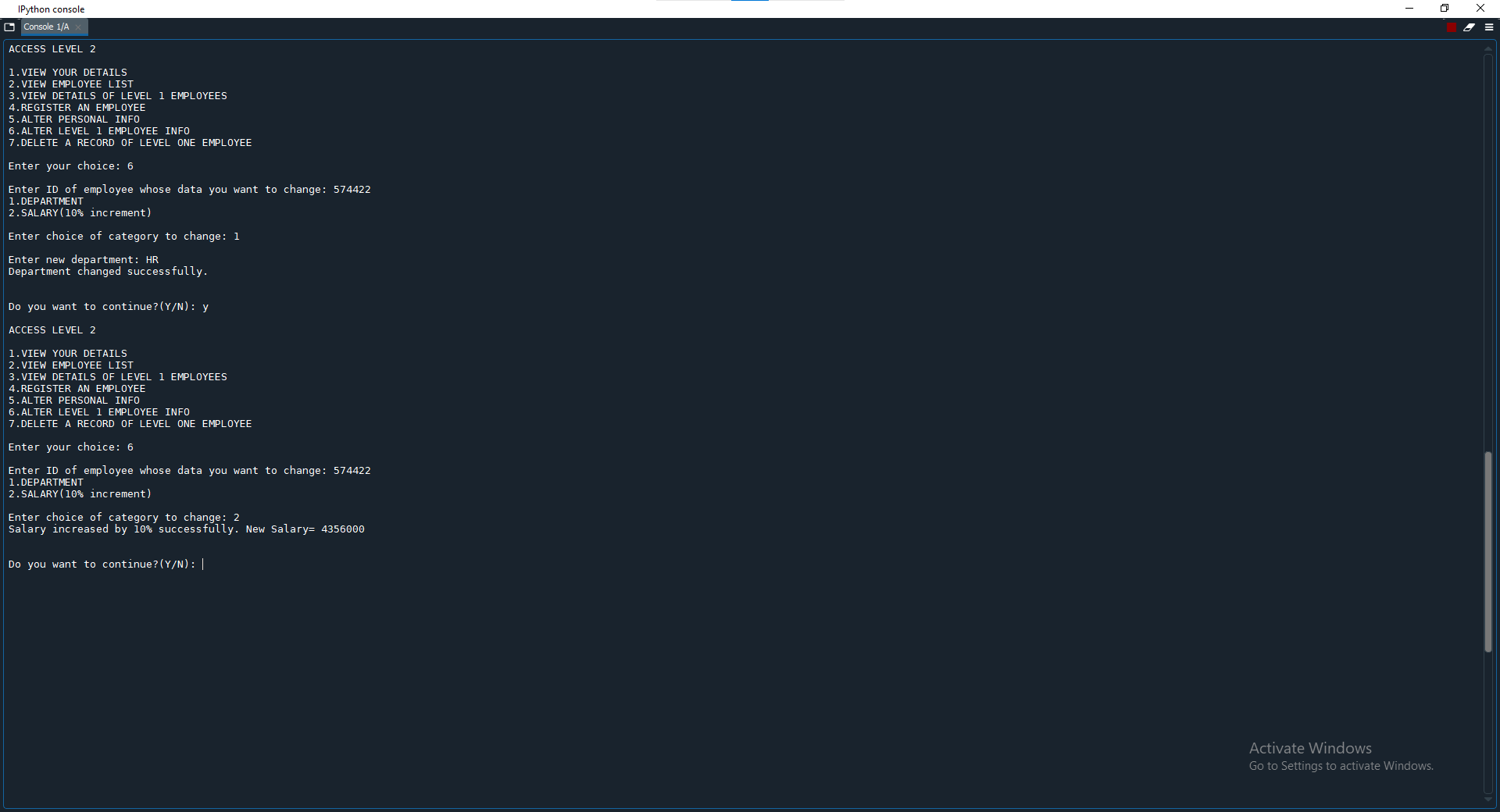
REGISTERING A NEW EMPLOYEE



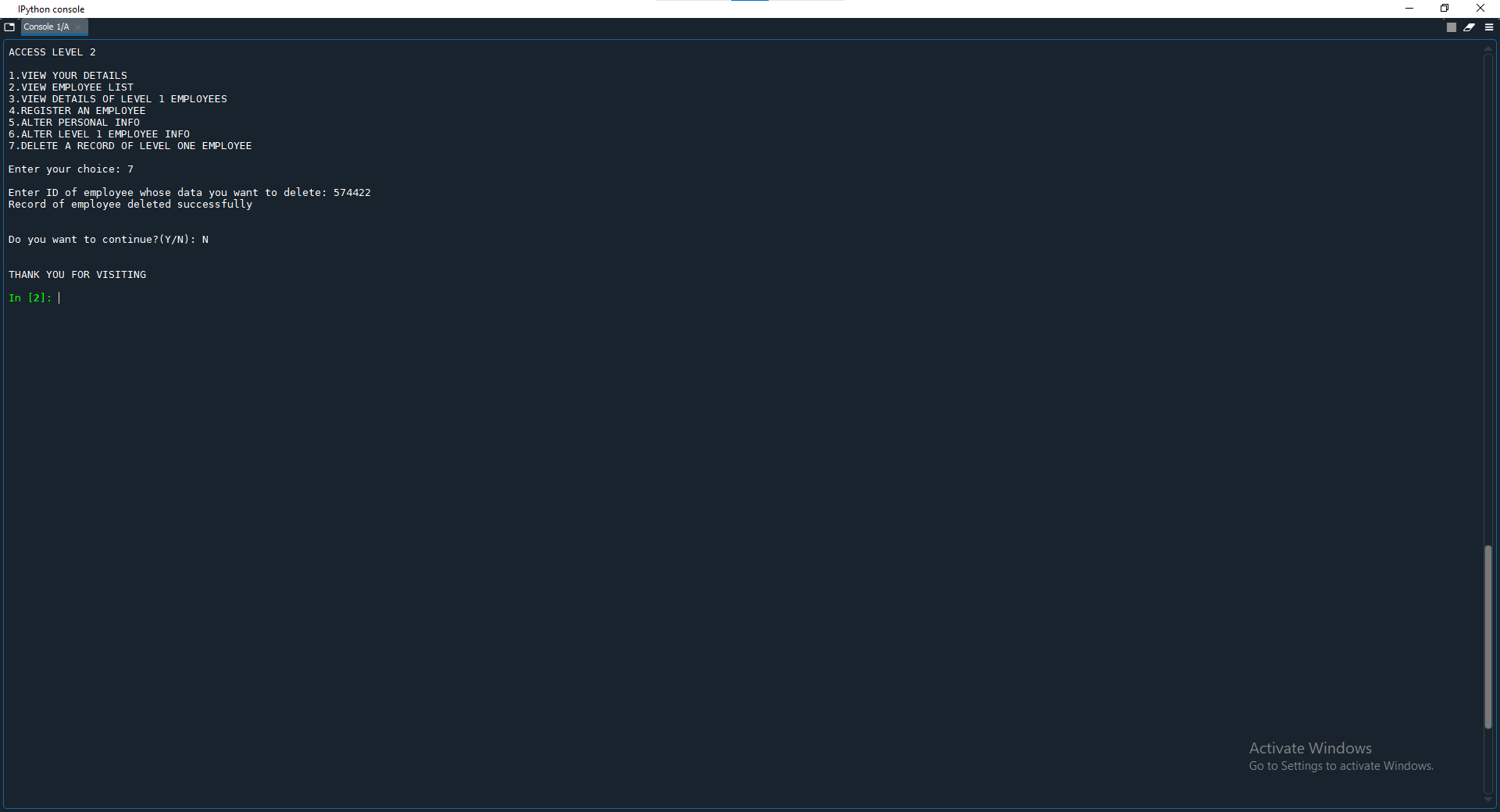
ALTERING OWN DEPARTMENT AND PASSWORD



ALTERING DEPARTMENT AND INCREASING SALARY OF LEVEL 1 EMPLOYEE

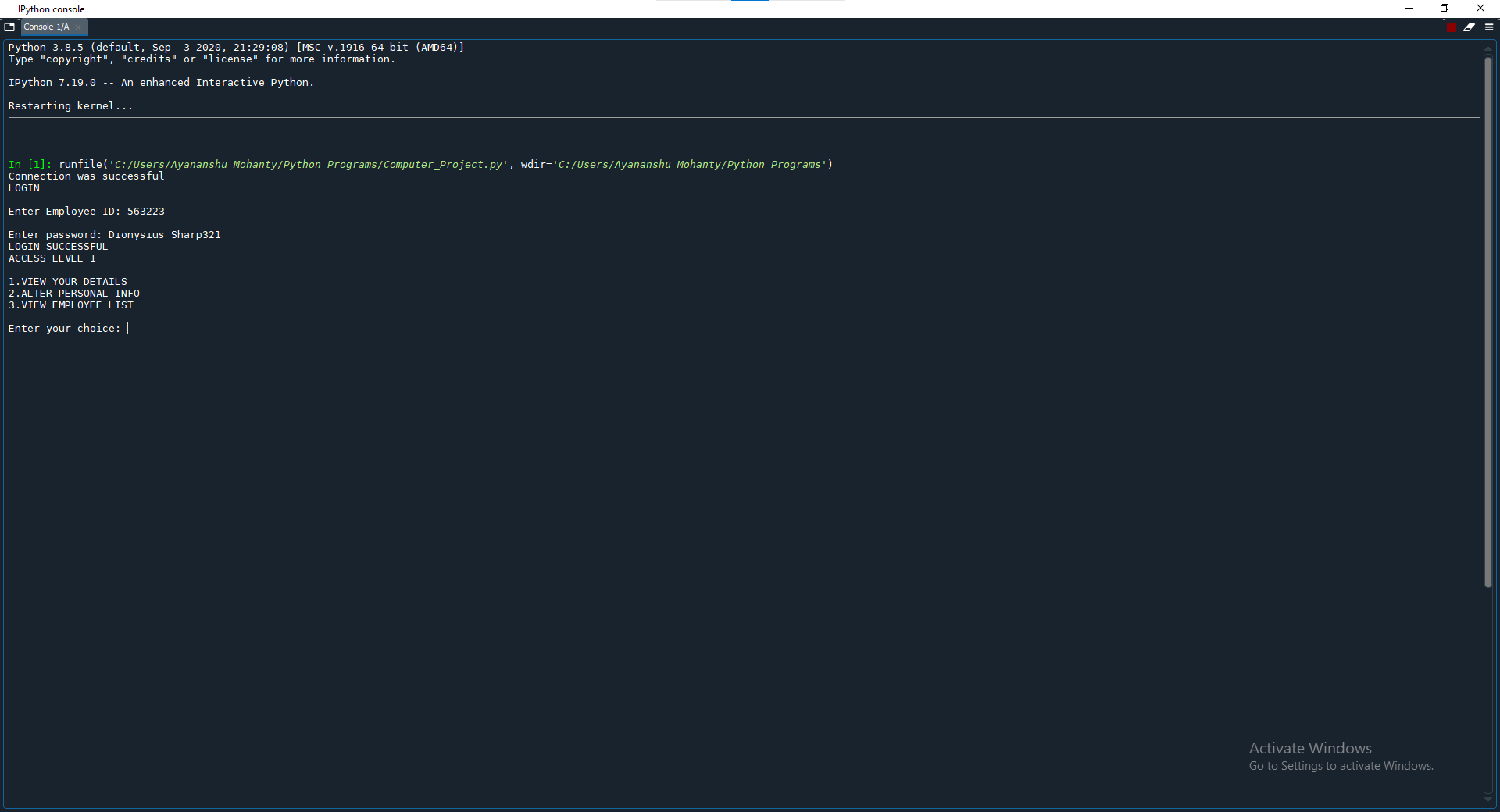


FIRING AN EMPLOYEE

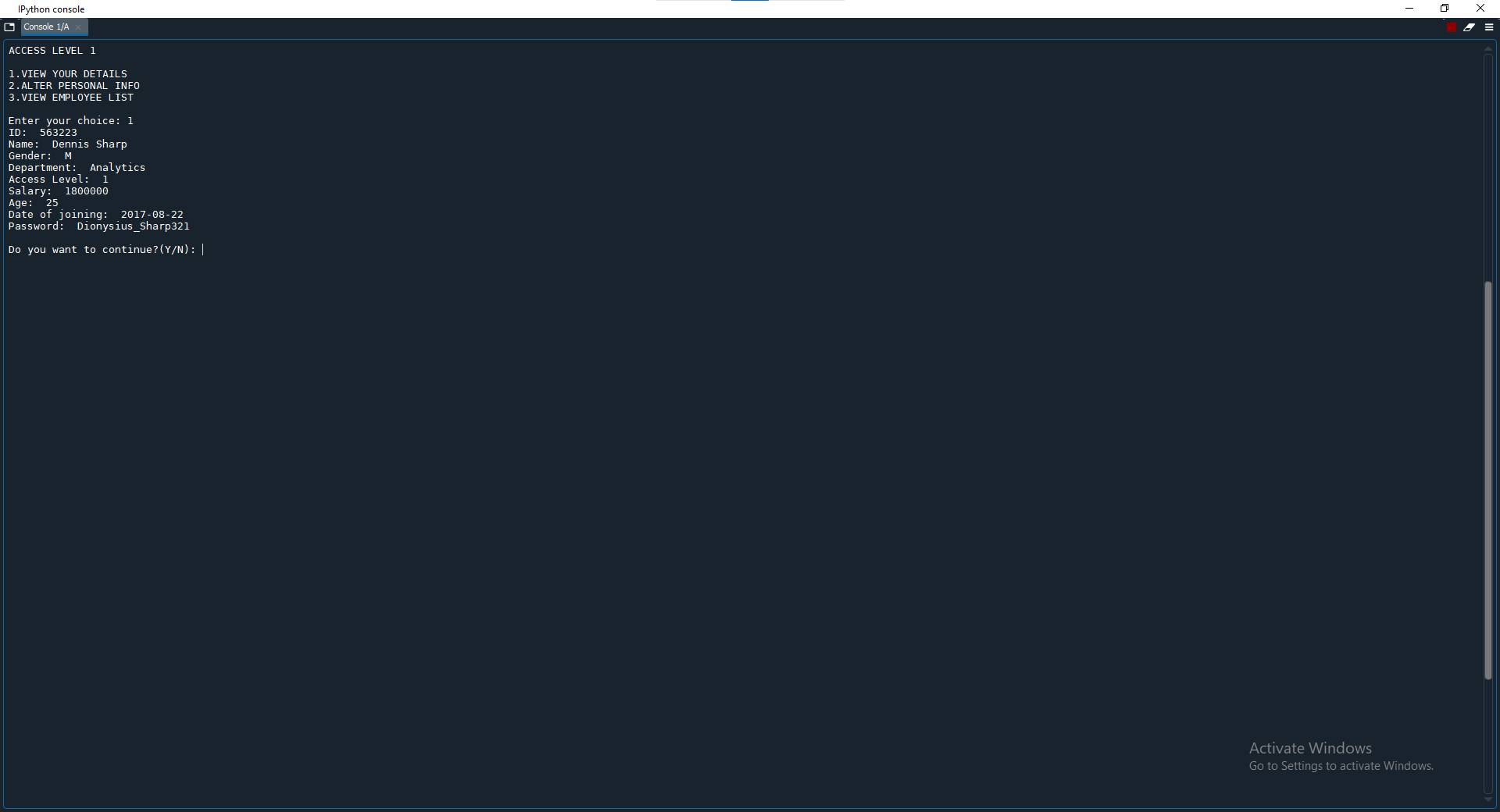


FOR ACCESS LEVEL 1

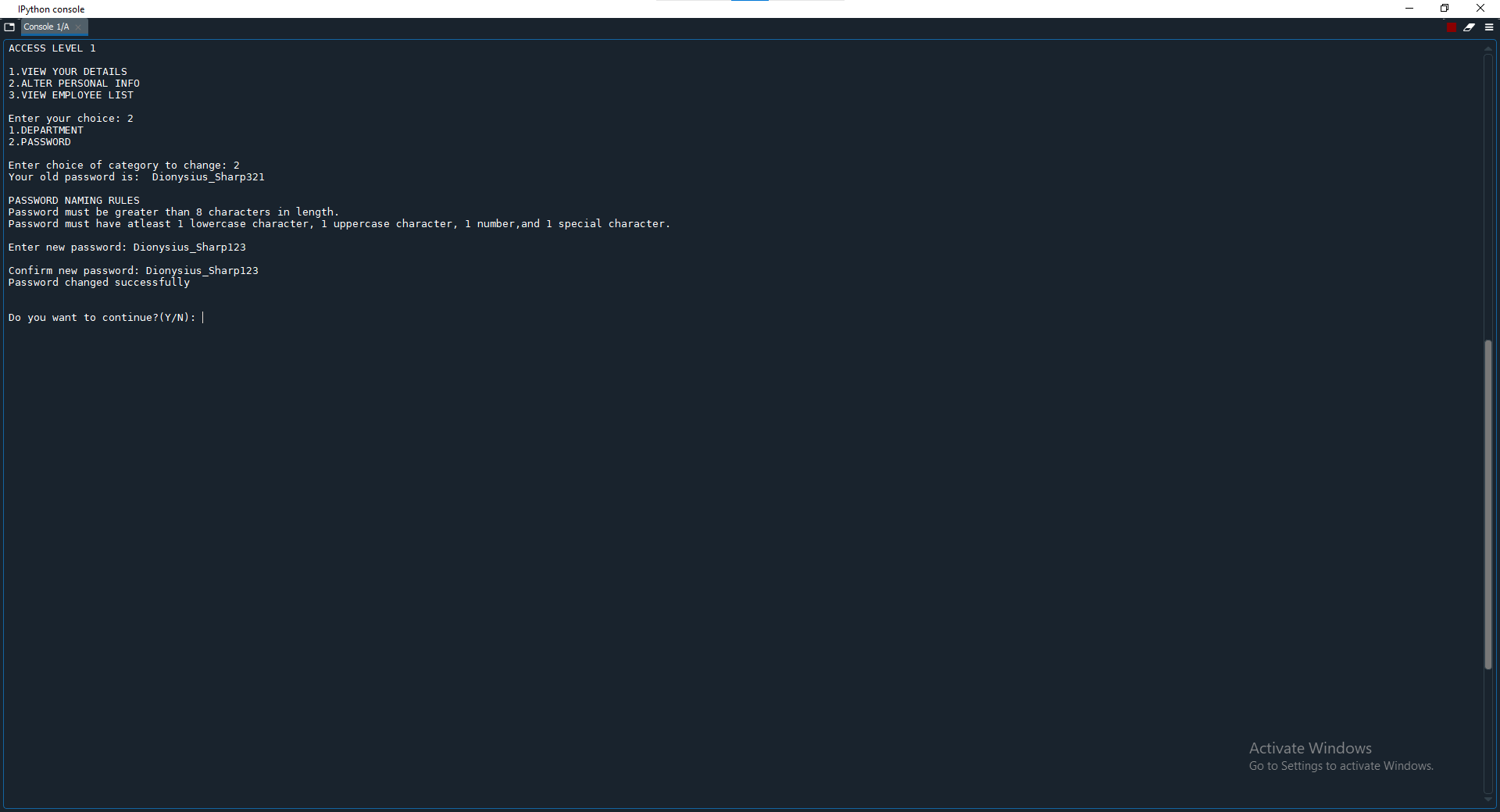
FOR ACCESS LEVEL 1 LOGIN AND MENU



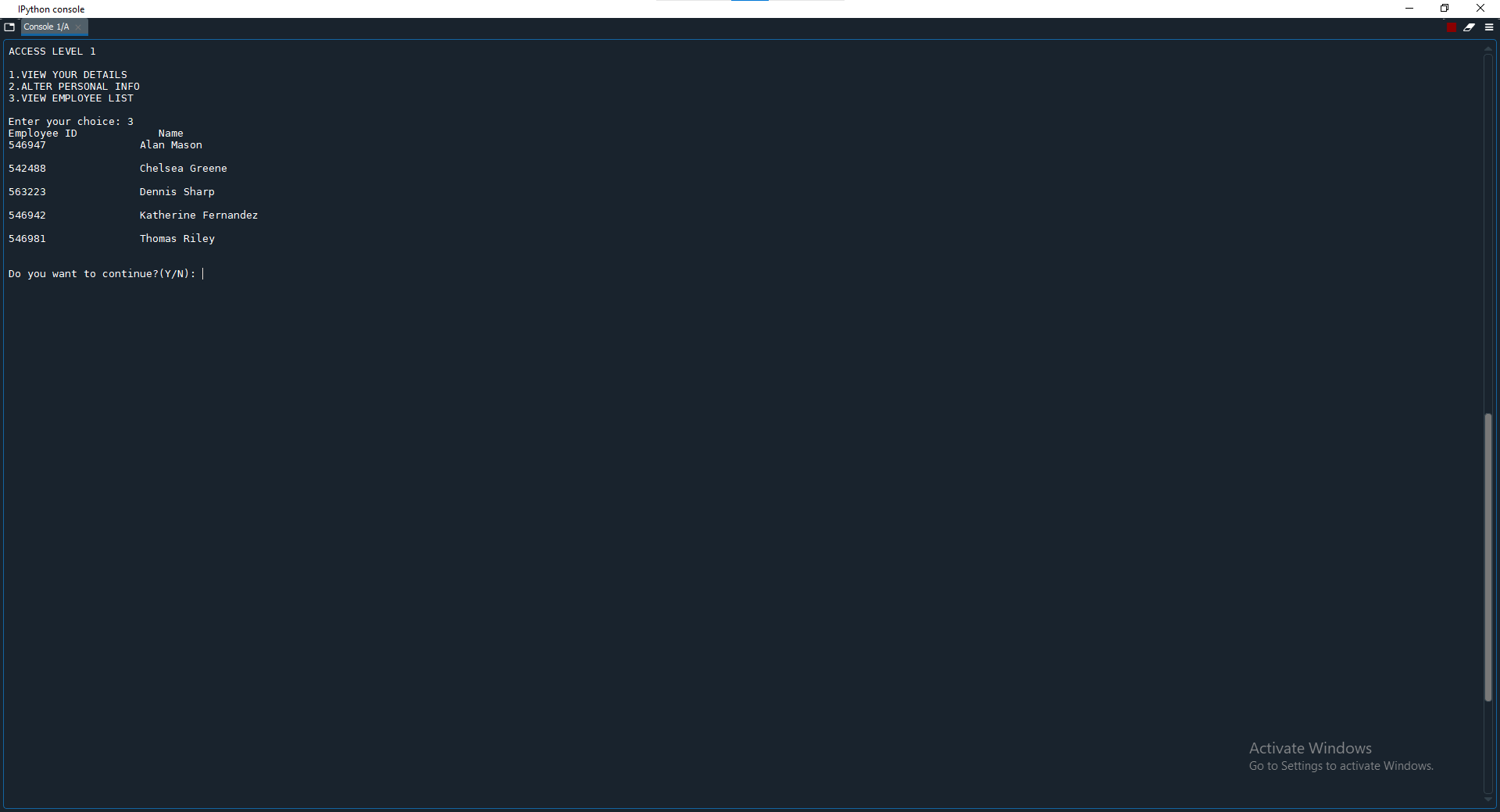
VIEWING OWN DETAILS



ALTERING PASSWORD



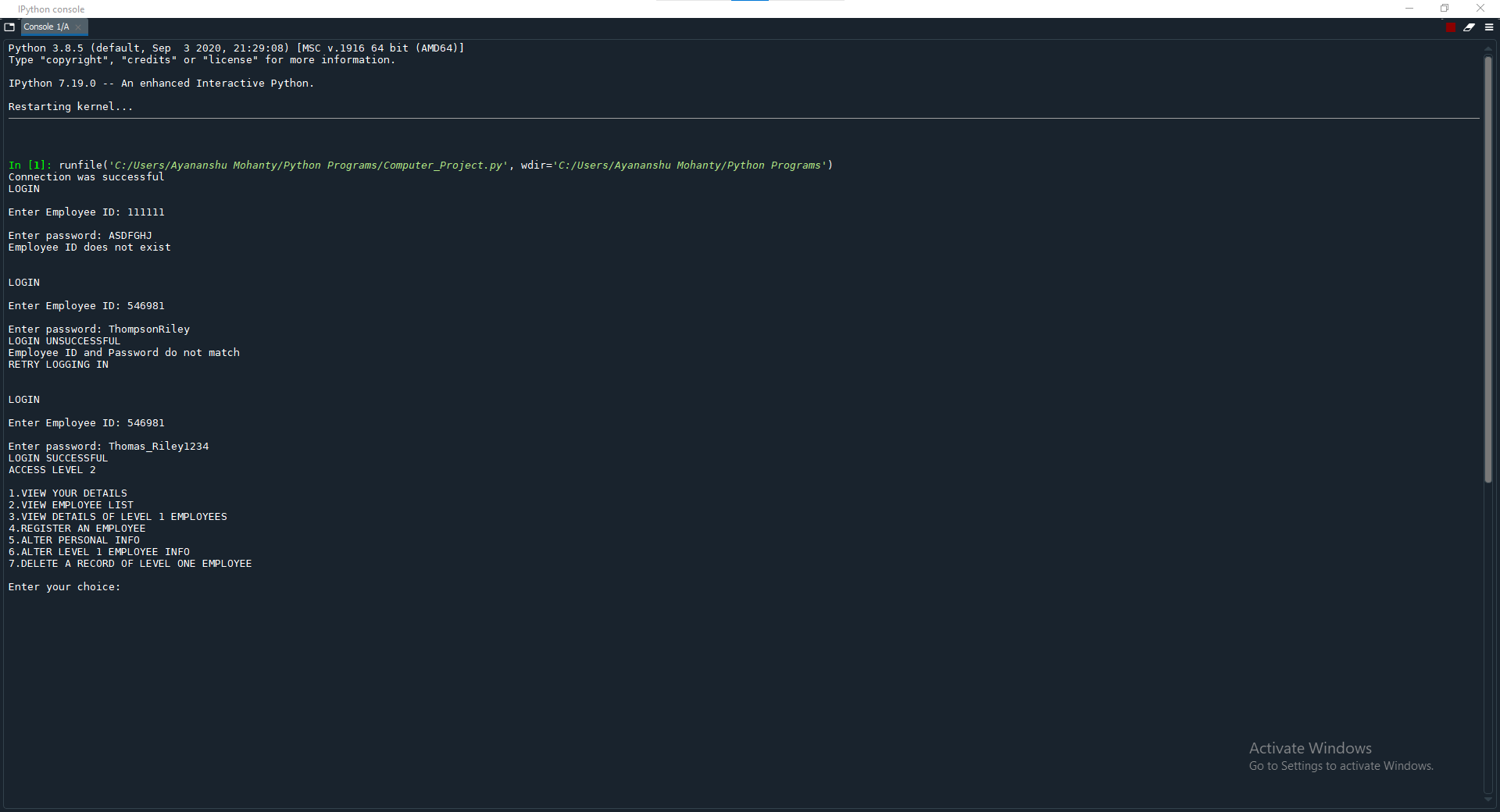
VIEWING EMPLOYEE LIST



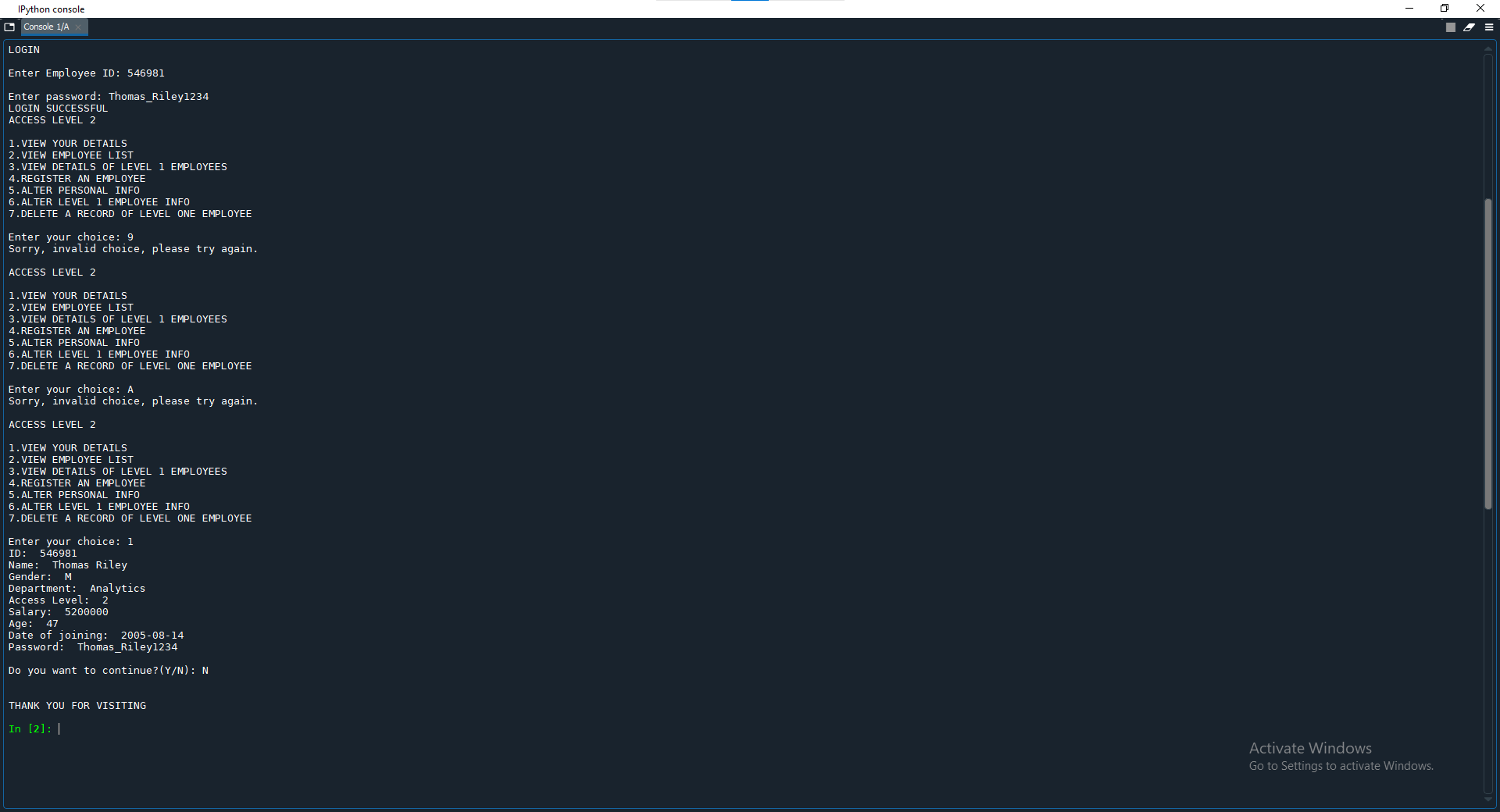
ALTERING PASSWORD BUT PASSWORD DOESN’T MEET CRITERIA



WHEN INCORRECT LOGIN CREDENTIALS ARE ENTERED



WHEN INCORRECT CHOICES ARE ENTERED INTO THE MENU



**HARDWARE AND SOFTWARE REQUIREMENTS**

**MINIMUM REQUIREMENTS**

OPERATING SYSTEM : WINDOWS 7+ / LINUX V3+ / MAC OS V16+

PROCESSOR : Intel Pentium GOLD G54000 / AMD Athlon 200GE

MOTHERBOARD : LGA1151 for Intel / AM4 for AMD

RAM : 2 GB DDR4

HARD DISK : 5 GB

MONITOR

KEYBOARD/MOUSE

**RECOMMENDED REQUIEMENTS**

OPERATING SYSTEM : WINDOWS 7+ / LINUX V3+ / MAC OS V16+

PROCESSOR : Intel Core i5-9400F / AMD Ryzen 53400g

MOTHERBOARD : LGA1151 for Intel / AM4 for AMD

RAM : 4 GB DDR4

HARD DISK : 10 GB

MONITOR

KEYBOARD/MOUSE

**BIBLIOGRAPHY**

1. Computer Science with Python – Sumita Arora
2. www.stackoverflow.com
3. www.softwareengineering.stackexchange.com
4. www.github.com
5. [www.kite.org](http://www.kite.org)