## **ACADEMIC YEAR: 2020-21**

# PROJECT REPORT ON EMPLOYEE MANAGEMENT SYSTEM

ROLL NO. :

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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.

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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.

## **PRELIMINARY REQUIREMENTS**

The following table has been used in our program which has been generated by this block of code:

create table employee\_info (ID char(6) not null primary key, Name varchar(40) not null, Gender char(1), Department varchar(50), Level\_of\_Access char(1), Salary integer, Age integer, Date\_Of\_Joining date, Password varchar(40));

Field	Туре	Null	Key	Default	Extra
ID	char(6)	NO	PRI	NULL	
Name	varchar(40)	NO	İ	NULL	i i
Gender	char(1)	YES	j	NULL	i i
Department	varchar(50)	YES	j	NULL	i i
Level of Access	char(1)	YES	į	NULL	i i
Salary	int	YES	İ	NULL	i i
Age	int	YES	į	NULL	i i
Date Of Joining	date	YES	i	NULL	i i
Password	varchar(40)	YES	i	NULL	i i

## An Example:

ID	Name	Gender	Department	Level_of_Access	Salary	Age	Date_Of_Joining	Password
542488	Chelsea Greene	F	HR	1	2000000	25	2010-05-06	chelseavoyager3
546942	Katherine Fernandez	F	HR	1	2400000	47	2005-08-14	Katherinelovescats22
546947	Alan Mason	M	HR	1	2400000	35	2009-03-11	StonedHarmony
546981	Thomas Riley	M	IT	2	5200000	47	2005-08-14	thomas riley123
563223	Dennis Sharp	M	Analytics	1	1800000	25	2017-08-22	Dionysius Sharp321

### **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("")
```

```
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()
```

```
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:
```

else:

```
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))
  .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 "abcdefghijklmnopgrstuvwxyz":
      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=[]
  I=len(data)
  for i in range(I):
    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=[]
  I=len(data)
```

```
for i in range(I):
    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

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#### VIEWING OWN DETAILS

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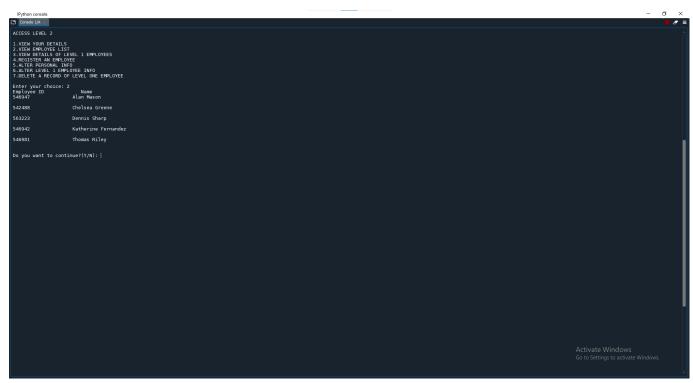
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#### VIEWING EMPLOYEE LIST



#### VIEWING ALL THE DETAILS OF ACCESS LEVEL 1 EMPLOYEES

(EXCEPT FOR THEIR PASSWORDS)

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#### **REGISTERING A NEW EMPLOYEE**

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#### ALTERING OWN DEPARTMENT AND PASSWORD

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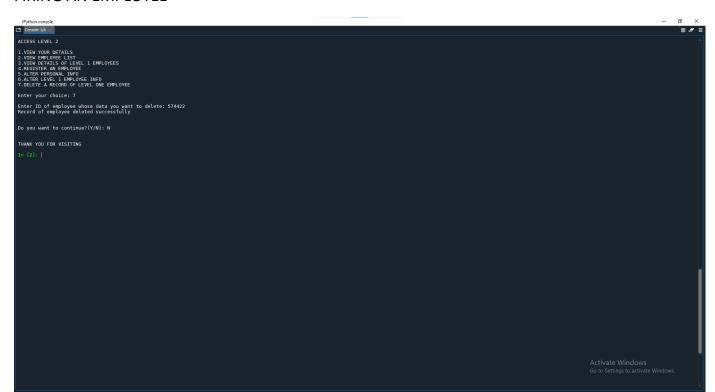
Activate Win
```

#### ALTERING DEPARTMENT AND INCREASING SALARY OF LEVEL 1 EMPLOYEE

```
Prince contains

| Section 1.5 | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains | Contains |
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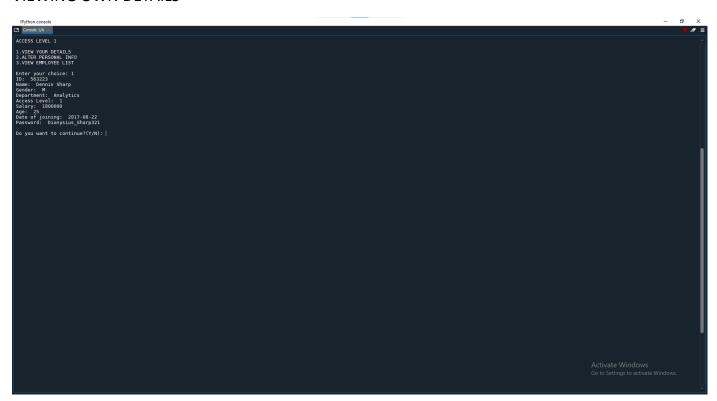
#### FIRING AN EMPLOYEE



#### FOR ACCESS LEVEL 1

#### FOR ACCESS LEVEL 1 LOGIN AND MENU

#### **VIEWING OWN DETAILS**



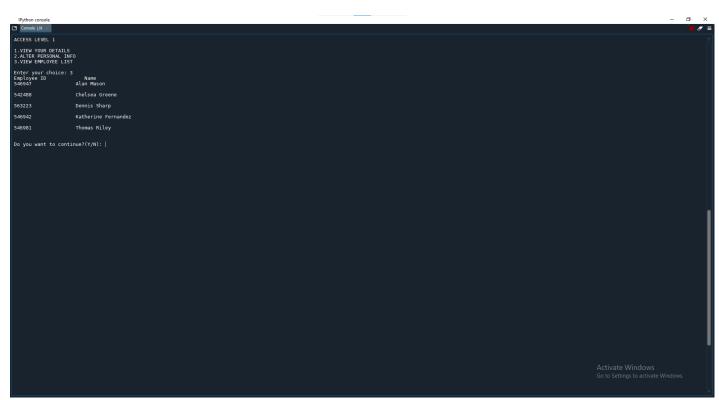
#### ALTERING PASSWORD

```
Demonstration

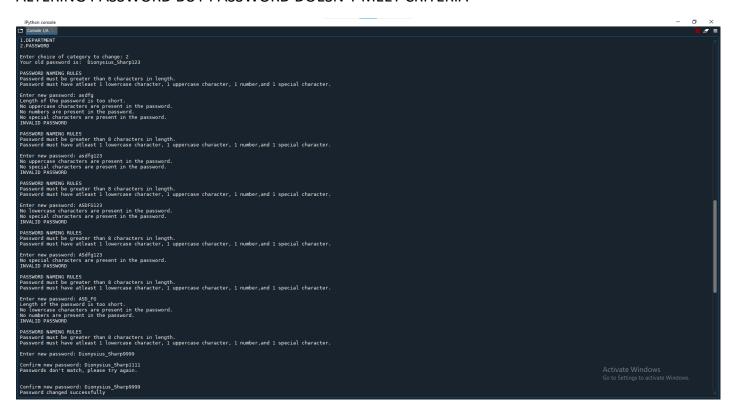
Constraint

Con
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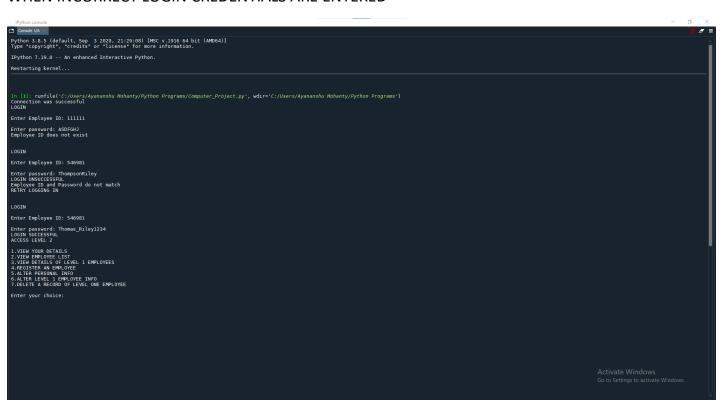
#### VIEWING EMPLOYEE LIST



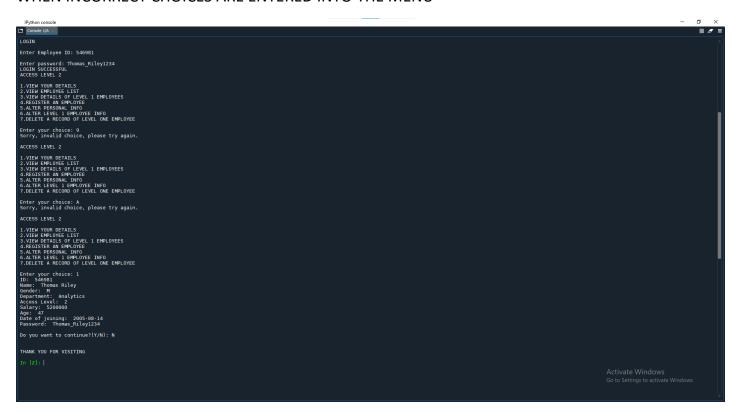
#### ALTERING PASSWORD BUT PASSWORD DOESN'T MEET CRITERIA



#### 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 REQUIREMENTS**

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**

- (i) Computer Science with Python Sumita Arora
- (ii) www.stackoverflow.com
- (iii) www.softwareengineering.stackexchange.com
- (iv) www.github.com
- (v) <u>www.kite.org</u>