Modules Used

1) **randint( )** function
from the
module **random**

2) **mysql.connector** driver

About the Modules

1) **randint( )** is a built-in function of the **random** module in Python. The random module is used for getting access to various functions like generating random numbers by using the randint( ) function.

2) **mysql.connector** is a driver used to establish a connection and communication between Python and a MySQL server. It has been developed and maintained by Oracle Corp. itself.

```python
# RAILWAY MANAGEMENT SYSTEM

# Importing Modules
import mysql.connector as sql
from random import randint

# Establishment of connection to MySQL Server
con = sql.connect(host='localhost',
                  user='root',
                  password='1234')
con.autocommit = True
cur = con.cursor()

# Creation of Database and subsequent Tables
cur.execute("CREATE DATABASE IRCTC;")
cur.execute("USE IRCTC;")
s = "CREATE TABLE accounts" \
    "(id   int primary key," \
    "pass  varchar(16)," \
    "name  varchar(100)," \
    "sex   char(1)," \
    "age   varchar(3)," \
    "dob   date," \
    "ph_no char(10));"
cur.execute(s)
s = "CREATE TABLE tickets" \
    "(id    int," \
    "PNR    int," \
    "train  varchar(25)," \
    "doj    date," \
    "tfr    varchar(100)," \
    "tto    varchar(100));"
cur.execute(s)


# Login Menu
def login_menu():
    print("WELCOME TO THE IRCTC PORTAL")
    print("1. Create New Account \n"
          "2. Log In \n"
          "3. Exit")
    opt = int(input("Enter your choice: "))
    if opt == 1:
        create_acc()
    elif opt == 2:
```

```
46          login()
47      else:
48          x = input("Exit the portal? (Y/N) ")
49          if x.upper() == "N":
50              login_menu()
51
52
53  # Account Creation
54  def create_acc():
55      print("Enter the details to create your account:")
56      i = randint(1000, 10000)
57      print(f"Your generated ID is: {i}")
58      p = input("Enter your password: ")
59      n = input("Enter your name: ")
60      sex = input("Enter your gender (M/F/O): ")
61      age = input("Enter your age: ")
62      dob = input("Enter your date of birth: ")
63      ph = input("Enter your contact number: ")
64      s1 = "INSERT INTO accounts VALUES" \
65           f"({i}, '{p}', '{n}', '{sex.upper()}', " \
66           f"{age}, '{dob}', '{ph}');"
67      cur.execute(s1)
68      print("Now you may log in with "
69            "your newly created account!")
70      login()
71
72
73  # Log in to Account
74  def login():
75      global a
76      try:
77          a = int(input("Enter your ID: "))
78          b = input("Enter your password: ")
79          s2 = f"SELECT name FROM accounts " \
80               f"WHERE id = {a} AND pass = '{b}';"
81          cur.execute(s2)
82          j = cur.fetchone()
83          print(f"Welcome back {j[0]}!")
84          main_menu()
85      except:
86          print("Your account was not found!")
87          print("You can: \n"
88                "1. Try logging in again \n"
89                "2. Create a new account")
90          ch = input("Enter your choice: ")
```

```
 91         if ch == "1":
 92             login()
 93         elif ch == "2":
 94             create_acc()
 95         else:
 96             print("Invalid choice!")
 97             x1 = input("Exit the portal? (Y/N) ")
 98             if x1.upper() == "N":
 99                 login_menu()
100 
101 
102 # Main Menu
103 def main_menu():
104     print("What would you like to do today? \n"
105           "1. Purchase a Ticket \n"
106           "2. Check Ticket Status \n"
107           "3. Request a refund \n"
108           "4. Account Settings \n"
109           "5. Logout \n"
110           "6. Exit")
111     ch1 = int(input("Enter your choice: "))
112     if ch1 == 1:
113         buy_ticket()
114     elif ch1 == 2:
115         show_ticket()
116     elif ch1 == 3:
117         cancel_ticket()
118     elif ch1 == 4:
119         account()
120     elif ch1 == 5:
121         login_menu()
122     else:
123         exit_prompt()
124 
125 
126 # Exit Prompt
127 def exit_prompt():
128     x2 = input("Would you like to exit? (Y/N) ")
129     if x2.upper() == "N":
130         main_menu()
131 
132 
133 # Back to Main Menu
134 def back_to_main_menu():
135     x3 = input("Return to the Main Menu? (Y/N) ")
```

```
    if x3.upper() == "Y":
        print("Returning to Main Menu...")
        main_menu()


# Ticket Creation
def buy_ticket():
    print("Enter details for your journey: ")
    i = a
    pnr = randint(100000, 1000000)
    print(f"Your PNR is {pnr}")
    train = input("Enter the name of the train: ")
    doj = input("Enter the date of your journey: ")
    fr = input("Enter the Departing Station: ")
    to = input("Enter the Destination Station: ")
    s4 = f"INSERT INTO tickets VALUES" \
         f"({i}, {pnr}, '{train}', " \
         f"'{doj}', '{fr}', '{to}');"
    cur.execute(s4)
    back_to_main_menu()


# Ticket Checking
def show_ticket():
    try:
        pnr = int(input("Enter your PNR: "))
        s5 = f"SELECT * FROM tickets " \
             f"WHERE pnr = {pnr}"
        cur.execute(s5)
        j = cur.fetchone()
        if j[0] == a:
            print(f"Train: {j[2]} \n"
                  f"Date of Journey: {j[3]} \n"
                  f"From: {j[4]} \n"
                  f"To: {j[5]}")
            back_to_main_menu()
        else:
            print("Unauthorized! \n"
                  "Your ID does not match the "
                  "PNR of ticket")
            back_to_main_menu()
    except:
        ticket_not_found()


```

```
# Ask for a refund
def cancel_ticket():
    try:
        pnr = int(input("Enter the PNR number "
                        "of the ticket: "))
        s2 = f"SELECT id, pnr, train " \
             f"FROM tickets " \
             f"WHERE pnr = {pnr}"
        cur.execute(s2)
        j = cur.fetchone()
        if j[0] == a:
            print(f"PNR: {j[1]} \n"
                  f"Train: {j[2]}")
            x4 = input("Do you really want to "
                       "cancel this ticket? (Y/N) ")
            if x4.upper() == "Y":
                s3 = f"DELETE FROM tickets " \
                     f"WHERE pnr = {pnr};"
                cur.execute(s3)
                print("You will be refunded shortly!")
                back_to_main_menu()
            else:
                back_to_main_menu()
        else:
            print("Unauthorized! \n"
                  "Your ID does not match "
                  "the PNR of ticket.")
            back_to_main_menu()
    except:
        ticket_not_found()


# If ticket is not found
def ticket_not_found():
    print("Ticket not found!")
    print("You can: \n"
          "1. Try entering your PNR number again \n"
          "2. Purchase a ticket \n"
          "3. Return to Main Menu \n"
          "4. Exit")
    ch = int(input("Enter your choice: "))
    if ch == 1:
        show_ticket()
    elif ch == 2:
        buy_ticket()
```

```
226     elif ch == 3:
227         print("Returning to Main Menu...")
228         main_menu()
229     else:
230         exit_prompt()
231 
232 
233 # Account settings
234 def account():
235     print("Do you want to: \n"
236           "1. Show Account details \n"
237           "2. Delete Account")
238     ch = int(input("Enter your choice: "))
239     if ch == 1:
240         s4 = f"SELECT * FROM accounts WHERE id = {a}"
241         cur.execute(s4)
242         j = cur.fetchone()
243         print(f"ID: {j[0]} \n"
244               f"Name: {j[2]} \n"
245               f"Gender: {j[3]} \n"
246               f"Age: {j[4]} \n"
247               f"DOB: {j[5]} \n"
248               f"Phone Number: {j[6]}")
249         back_to_main_menu()
250     elif ch == 2:
251         x6 = input("Do you want to request for refund(s) "
252                    "for your ticket(s) too? (Y/N) ")
253         if x6.upper() == "Y":
254             s5 = f"DELETE FROM tickets WHERE id = {a}"
255             cur.execute(s5)
256             print("You will be refunded shortly!")
257         s6 = f"DELETE FROM ACCOUNTS " \
258              f"WHERE id = {a}"
259         cur.execute(s6)
260         print("Account Successfully Deleted!")
261         login_menu()
262     else:
263         back_to_main_menu()
264 
265 
266 # Calling the first function, hence starting the program
267 login_menu()
268 
```

```
# Stable Program Run:

WELCOME TO THE IRCTC PORTAL
1. Create New Account
2. Log In
3. Exit
Enter your choice: 1
Enter the details to create your account:
Your generated ID is: 3219
Enter your password: ayan9147
Enter your name: Ayan Roy
Enter your gender (M/F/O): M
Enter your age: 17
Enter your date of birth: 2005-07-08
Enter your contact number: 1234567890
Now you may log in with your newly created account!
Enter your ID: 3219
Enter your password: ayan9147
Welcome back Ayan Roy!
What would you like to do today?
1. Purchase a Ticket
2. Check Ticket Status
3. Request a refund
4. Account Settings
5. Logout
6. Exit
Enter your choice: 1
Enter details for your journey:
Your PNR is 629532
Enter the name of the train: Rajdhani Express
Enter the date of your journey: 2022-12-31
Enter the Departing Station: NJP
Enter the Destination Station: NDLS
Return to the Main Menu? (Y/N) Y
Returning to Main Menu...
What would you like to do today?
1. Purchase a Ticket
2. Check Ticket Status
3. Request a refund
4. Account Settings
5. Logout
6. Exit
Enter your choice: 2
Enter your PNR: 629532
Train: Rajdhani Express
```

```
Date of Journey: 2022-12-31
From: NJP
To: NDLS
Return to the Main Menu? (Y/N) Y
Returning to Main Menu...
What would you like to do today?
1. Purchase a Ticket
2. Check Ticket Status
3. Request a refund
4. Account Settings
5. Logout
6. Exit
Enter your choice: 3
Enter the PNR number of the ticket: 629532
PNR: 629532
Train: Rajdhani Express
Do you really want to cancel this ticket? (Y/N) Y
You will be refunded shortly!
Return to the Main Menu? (Y/N) Y
Returning to Main Menu...
What would you like to do today?
1. Purchase a Ticket
2. Check Ticket Status
3. Request a refund
4. Account Settings
5. Logout
6. Exit
Enter your choice: 5
WELCOME TO THE IRCTC PORTAL
1. Create New Account
2. Log In
3. Exit
Enter your choice: 2
Enter your ID: 3219
Enter your password: ayan9147
Welcome back Ayan Roy!
What would you like to do today?
1. Purchase a Ticket
2. Check Ticket Status
3. Request a refund
4. Account Settings
5. Logout
6. Exit
Enter your choice: 4
Do you want to:
```

```
1. Show Account details
2. Delete Account
Enter your choice: 1
ID: 3219
Name: Ayan Roy
Gender: M
Age: 17
DOB: 2005-07-08
Phone Number: 1234567890
Return to the Main Menu? (Y/N) Y
Returning to Main Menu...
What would you like to do today?
1. Purchase a Ticket
2. Check Ticket Status
3. Request a refund
4. Account Settings
5. Logout
6. Exit
Enter your choice: 4
Do you want to:
1. Show Account details
2. Delete Account
Enter your choice: 2
Do you want to request for refund(s) for your ticket(s) too? (Y/N)
You will be refunded shortly!
Account Successfully Deleted!
WELCOME TO THE IRCTC PORTAL
1. Create New Account
2. Log In
3. Exit
Enter your choice: 3
Exit the portal? (Y/N) Y

Process finished with exit code 0
```

Limitations

Our code has the following limitations:

1) It cannot alter the details of an account.

2) It cannot alter the details of a ticket.

3) It does not provide a user information about the trains available.

4) It does not have any pre-existing information.

Requirements

Our program has the same system requirements as Python 3.11 and MySQL.

- Modern Operating System:
  Windows 7 to 11
  Mac OS X 10.11 or higher, 64-bit
  Linux: RHEL 6/7, 64-bit
- x86 64-bit CPU (Intel / AMD architecture)
- 4 GB RAM
- 5 GB free disk space