## User Interface:

Import important libraries:

In [1]:
```
import mysql.connector
import getpass
import ipywidgets as widgets
import random, string
from datetime import datetime, timedelta
```

Register new user:

In [2]:
```
#register new user
conn = mysql.connector.connect(user='root', password='password',host='127.0.0.1',database='theatre')
fullname = widgets.Text(placeholder='Enter name',description='Full Name:')
email = widgets.Text(placeholder='Enter Email',description='Email:')
phn = widgets.Text(placeholder='Enter Phone Number',description='Phone No:')
addrs = widgets.Text(placeholder='Enter Address',description='Address:')
gender_radio = widgets.RadioButtons(options=['MALE','FEMALE'],layout={'width': 'max-content'},description='Gender:')



button = widgets.Button(description="Submit")
output = widgets.Output()


def on_button_clicked(b):
    with output:
        output.clear_output()
        u_id = ''.join(random.choices(string.ascii_letters + string.digits, k=16))
        query_insertreview = ('insert into user values("{uid}","{fname}","{em}","{ph}","{addr}","{gender},{role}");'.format(
        uid = u_id,
        fname = fullname.value,
        ph = phn.value,
        addr = addrs.value,
        gender = gender_radio.value,
        role = 'USER'
        ))

        with conn.cursor() as cursor:
            cursor.execute(query_insertreview)
            cursor.execute('commit;')
            print('User Registered with ID',u_id)

button.on_click(on_button_clicked)


display(fullname,email,phn,addrs,gender_radio,button,output)
```

Full Name: Enter name

Email: Enter Email

Phone No: Enter Phone Number

Address: Enter Address

Gender:

- (•) MALE
- ( ) FEMALE

Submit

Login to the the system(User or admin):

In [3]:
```
Username = widgets.Text(placeholder='Type username',description='Username:')

Password = widgets.Password(placeholder='Enter password',description='Password:')

user_id = ''

button = widgets.Button(description="Connect!")
output = widgets.Output()
display(Username, Password, button, output)
conn = mysql.connector.connect()
def on_button_clicked(b):
    global user_id
    rootconn = mysql.connector.connect(user='root', password='password',host='127.0.0.1',database='theatre')
    print("initial")
    print(rootconn)
    with output:
        with rootconn.cursor() as cursor:
            global conn
            query = 'select * from user where email = "{username}" and phone_number like "%{password}";'
            cursor.execute(query.format(username = Username.value,password = Password.value))
            res = cursor.fetchall()
            for i in res:
                print(i)
                user_id = i[0]
                print('Welcome User: {name}'.format(name = i[1]))
                if(i[6] == 'USER'):
                    conn = mysql.connector.connect(user='root', password='password',host='127.0.0.1',database='theatre')
                else:
                    conn = rootconn
        print('Status: Logged In')
        print(conn)

button.on_click(on_button_clicked)

# hoc081098@gmail.com
# 135
```

Username: hoc081098@gmail.com

Password: •••

Connect!

```
 ('5f6a22e3075f5b523f6085a4', 'Petrus Hoc', 'hoc081098@gmail.com', '0363438135', '123', 'MALE', 'USER', 30.0)
 Welcome User: Petrus Hoc
 Status: Logged In
 <mysql.connector.connection_cext.CMySQLConnection object at 0x00000205C2CE2790>

initial
<mysql.connector.connection_cext.CMySQLConnection object at 0x00000205C2CE2C70>
```

User selects a movie:

In [4]:
```
movielist = list()
button = widgets.Button(description="Select")
output = widgets.Output()
with conn.cursor() as cursor:
    cursor.execute('select title,movie_id from movie;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        movielist.append(tup)
selectmovie = widgets.Dropdown(options=movielist,description='Select Movie:')

query_moviegenre = 'select name from genre where genre_id in(select genre_id from movie_genre inner join movie on movie.movie_id = movie_genre.movie_id where movie.movie_id = "{movieid}");'
query_movieactor = 'select full_name from movie inner join movie_actor on movie_actor.movie_id = movie.movie_id inner join movie_cast on movie_cast.cast_id = movie_actor.actor_id  where movie.movie_id = "{movieid}";'
query_moviedirector = 'select full_name from movie inner join movie_director on movie_director.movie_id = movie.movie_id inner join movie_cast on movie_cast.cast_id = movie_director.director_id  where movie.movie_id = "{movieid}";'
query_movie = 'select * from movie where movie_id = "{movieid}";'

def on_button_clicked(b):
    with output:
        with conn.cursor() as cursor:
            genrelist = list()
            actorlist = list()
            directorlist = list()

            cursor.execute(query_movie.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Movie details:')
            for i in res:
                print('Description:')
                print(i[2])
                print('Duration:',end=" ")
                print(i[3])
                print('Release Date:',end=" ")
                print(i[4])
                print('Release Language:',end=" ")
                print(i[5])


            cursor.execute(query_moviegenre.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Genre:',end=" ")
            for i in res:
                genrelist.append(i[0])
            genres = ', '.join(genrelist)
            print(genres)

            cursor.execute(query_moviedirector.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Directed By:',end=" ")
            for i in res:
                directorlist.append(i[0])
            directors = ', '.join(directorlist)
            print(directors)

            cursor.execute(query_movieactor.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Cast:',end=" ")
            for i in res:
                actorlist.append(i[0])
            actors = ', '.join(actorlist)
            print(actors)

button.on_click(on_button_clicked)
display(selectmovie,button,output)
```

Select Movie: The Man Standing Next

Select

```
Movie details:
Description:
In the 1970s, Korea is under the absolute control of the President Park who controls the KCIA, the organization with an edge over any branch of government. The director of KCIA, KIM Gyu-pyeong, is the seemingly most prospective second-in-command. In the midst of reign of fear, a former KCIA director, PARK Yong-gak who knows all about the government’s obscure operations, exiles to th
e U.S. where the investigation of ‘Koreagate’ is underway. As the tension escalates, the stifling political maneuvering by the all second-in-command’s unfolds.
Duration: 114
Release Date: 2020-10-21
Release Language: ko
Genre: Action, Drama
Directed By: Woo Min-ho
Cast: Lee Byung-hun, Lee Sung-min, Kwak Do-won, Lee Hee-jun, Kim So-jin, Seo Hyun-woo, Kim Min-sang, Kim Hong-pa, Park Ji-il, Ji Hyeon-jun
```

Select Theatre and then select a showtime for the selected movie:

In [5]:
```
theatrelist = list()
showlist = list()

button = widgets.Button(description="Select")
output = widgets.Output()

showquery = 'select showtime_id, theatre.theatre_id, theatre.theatre_name,theatre_name,start_time,end_time from showtime inner join movie on showtime.movie_id = movie.movie_id inner join theatre on showtime.theatre_id = theatre.theatre_id where movie.movie_id = "{movieid}" group by start_time,end_time;'

with conn.cursor() as cursor:
    cursor.execute(showquery.format(movieid = selectmovie.value))
    res = cursor.fetchall()
    for i in res:
        st = str(i[2])#+' Time:'+str(i[1]) + ' to ' + str(i[2])
        tup = (st,i[1])
        theatrelist.append(tup)
        theatreset=set(theatrelist)

theatreradio = widgets.RadioButtons(options=theatreset,layout={'width': 'max-content'},description='Theatres:')

showtimeradio = widgets.RadioButtons()

def on_button_clicked(b):
    with output:
        global showtimeradio
        output.clear_output()
        with conn.cursor() as cursor:
            cursor.execute(showquery.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            st = ''
            showlist = list()
            for i in res:
                if (i[1] == theatreradio.value):
                    st = str(i[4]) + ' - ' + str(i[5])
                    tup = (st,i[0])
                    showlist.append(tup)
                    showset=set(showlist)
        showtimeradio = widgets.RadioButtons(options=showset,layout={'width': 'max-content'},description='Shows:')
        display(showtimeradio)


button.on_click(on_button_clicked)

display(theatreradio,button,output)
```

Theatres:

- ○ Lotte Cinema Đà Nẵng
- ◉ Galaxy - Đà Nẵng
- ○ Starlight Đà Nẵng

Select

Shows:

- ◉ 2020-10-18 02:00:00 - 2020-10-18 03:54:00
- ○ 2020-09-23 02:00:00 - 2020-09-23 03:54:00
- ○ 2022-12-16 12:26:00 - 2022-12-21 06:26:00
- ○ 2020-10-18 04:00:00 - 2020-10-18 05:54:00
- ○ 2020-10-20 04:00:00 - 2020-10-20 05:54:00
- ○ 2020-10-20 02:00:00 - 2020-10-20 03:54:00
- ○ 2020-09-23 04:00:00 - 2020-09-23 05:54:00
- ○ 2022-12-12 21:36:00 - 2022-12-17 15:36:00

Select Seats: (shows only unbooked seats)

In [6]:
```
#book seat
#select seat

seattoggles = widgets.SelectMultiple()

rowlist = list()


query_emptyseats = 'select seats.seat_id,room,row_,column_,ticket_id from seats inner join ticket on ticket.seat_id = seats.seat_id where showtime_id = "{showtimeid}" and booking_id is null;'

with conn.cursor() as cursor:
    cursor.execute(query_emptyseats.format(showtimeid = showtimeradio.value))
    res = cursor.fetchall()
    for i in res:
        st = str(i[2]) + ' - ' + str(i[3])
        st_ids = (i[0],i[4])
        tup = (st,st_ids)
        rowlist.append(tup)
seattoggles = widgets.SelectMultiple(options=rowlist,description='Select Seat:',layout=widgets.Layout(width='70%', height='200px'))



display(seattoggles)

#4 seats only
```

Select Seat:
A - 6
A - 7
A - 8
A - 9
A - 10
B - 1
B - 2
B - 3
B - 4
B - 5
B - 6
B - 7

Applying discount on basis of credit points:

In [7]:
```
#generate booking id

#generate bill
actbill_query = 'select sum(price)/1000 from ticket where ticket_id in {tickets};'
disc_bill = "select calc_discount('{userid}',{amt});"
#amount = int()

tickets = list()
seat = iter(seattoggles.value)
length = len(seattoggles.value)
for t in range(4):
    if(t < length):
        tickets.append(next(seat)[1])
    else:
        tickets.append("")
    tick_ids = tuple(tickets)

# for t in seattoggles.value:
#     tickets.append(t[1])
# tick_ids = tuple(tickets)

with conn.cursor() as cursor:
    cursor.execute(actbill_query.format(tickets = tick_ids))
    res = cursor.fetchall()
    for i in res:
        print('Charges: ',int(i[0]))
        amount = int(i[0])
    cursor.execute(disc_bill.format(userid = user_id,amt = amount))
    #cursor.execute('select @n;')
    res = cursor.fetchall()
    for i in res:
        print('Payable after applying credit score: ',i[0])
        amount = int(i[0])

#20percent discount to users with 5 old bookings
#take payment
#payment complete
#insert payment id to payment table and booking table
#insert booking id to booking table and ticket table
#print(user_id)
#seattoggles.value
```

```
Charges:  140
Payable after applying credit score:  131
```

Generate new Booking and payment IDs:

In [8]:
```
booking_id = ''.join(random.choices(string.ascii_letters + string.digits, k=16))
paymentid = ''.join(random.choices(string.ascii_letters + string.digits, k=16))
print("Booking ID: ",booking_id)
print("Payment ID: ",paymentid)
```

```
Booking ID:  1IU0mY7tP1EhslUt
Payment ID:  wwWoA4TVkomu87MM
```

Make payment by adding card number:

In [10]:
```
# enter card number
cardno = widgets.Text(placeholder='Enter Card Number',description=' Enter Card:')
button = widgets.Button(description="Book tickets")
output = widgets.Output()

def on_button_clicked(b):
    with output:
        output.clear_output()
        query_makebooking = ('call make_bookings("{bid}","{uid}","{shtid}","{pid}","{tid1}","{tid2}","{tid3}","{tid4}","{cn}","{tp}");'.format(
        bid = booking_id,
        uid = user_id,
        shtid = showtimeradio.value,
        pid = paymentid,
        tid1 = tick_ids[0],
        tid2 = tick_ids[1],
        tid3 = tick_ids[2],
        tid4 = tick_ids[3],
        cn = cardno.value,
        tp =  amount
        ))

        with conn.cursor() as cursor:
            #print(query_makebooking)
            cursor.execute(query_makebooking)
            cursor.execute('commit;')
            print('Booking Successfull')

button.on_click(on_button_clicked)

display(cardno,button,output)
```

Enter Card: 5764636879

Book tickets

```
Booking Successfull
```

Print tickets for customer:

In [11]:
```
from pandas import DataFrame
print("Tickets:")
query_viewtickets = "select * from ticket_information where Booking_Confirmation_No = '{bookingid}';"
with conn.cursor() as cursor:
    cursor.execute(query_viewtickets.format(bookingid = booking_id))
    df = DataFrame(cursor.fetchall())
    df.columns = cursor.column_names
    display(df)
```

```
Tickets:
```

| | Movie | Audi | Row | Seat | Theatre | Location | Contact Number(Theatre) | Booking_Confirmation_No | Form (time) | To |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | The Man Standing Next | 2D 4 | A | 3 | Galaxy - Đà Nẵng | Tầng 3, TTTM Coop Mart, 478 Điện Biên Phủ, Quậ... | 02363739888 | 1IU0mY7tP1EhslUt | 2020-10-18 02:00:00 | 2020-10-18 03:54:00 |
| **1** | The Man Standing Next | 2D 4 | A | 4 | Galaxy - Đà Nẵng | Tầng 3, TTTM Coop Mart, 478 Điện Biên Phủ, Quậ... | 02363739888 | 1IU0mY7tP1EhslUt | 2020-10-18 02:00:00 | 2020-10-18 03:54:00 |

Print bill for customer:

In [12]:
```
from pandas import DataFrame
print("Bill:")
query_viewbill = "select * from user_bill where Bill_Number = '{payid}';"
with conn.cursor() as cursor:
    cursor.execute(query_viewbill.format(payid = paymentid))
    df = DataFrame(cursor.fetchall())
    df.columns = cursor.column_names
    display(df)
```

```
Bill:
```

| | Bill_Number | Movie | Theatre | Theatre Contact Number | Payee | User Email | Amount Paid |
|---|---|---|---|---|---|---|---|
| **0** | wwWoA4TVkomu87MM | The Man Standing Next | Galaxy - Đà Nẵng | 02363739888 | Petrus Hoc | hoc081098@gmail.com | 131 |

Record user`s review for a movie:

In [13]:
```
#user rates a movie
movielist = list()
with conn.cursor() as cursor:
    cursor.execute('select title,movie_id from movie;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        movielist.append(tup)
selectmovietorev = widgets.Dropdown(options=movielist,description='Select Movie:')

write_review = widgets.Textarea(placeholder='Type a review',description='Comments:')

review_radio = widgets.RadioButtons(options=[1,2,3,4,5],layout={'width': 'max-content'},description='Rating:')

button = widgets.Button(description="Submit")
output = widgets.Output()


def on_button_clicked(b):
    with output:
        output.clear_output()
        rating_id = ''.join(random.choices(string.ascii_letters + string.digits, k=16))
        query_insertreview = ('insert into rating values("{rid}","{uid}","{mid}","{rev}","{revstar}");'.format(

        rid = rating_id,
        uid = user_id,
        mid = selectmovietorev.value,
        rev = write_review.value,
        revstar = review_radio.value
        ))

        with conn.cursor() as cursor:
            cursor.execute(query_insertreview)
            cursor.execute('commit;')
            print('Review Recorded with ID',rating_id)

button.on_click(on_button_clicked)


display(selectmovietorev,write_review,review_radio,button,output)
```

Select Movie: The Man Standing Next

Comments: Great Movie

Rating:

- 1
- 2
- 3
- 4
- 5

Submit

```
Review Recorded with ID JZigULClQkYSuBlk
```

### Admin interface

insert new movie and create a show in given theatres:

In [14]:
```
#insert new movie and create a show in given theatres

newmovie_id = ''.join(random.choices(string.ascii_letters + string.digits, k=16))

Title = widgets.Text(placeholder='Enter Title',description='Title:')
Overview = widgets.Text(placeholder='Enter Overview',description='Overview:')
Duration = widgets.Text(placeholder='Enter Duration in Hrs',description='Duration:')
Release_date = widgets.Text(placeholder='Enter Release Date',description='Release_date:')
original_language = widgets.Text(placeholder='Enter Original Language',description='Original Language:')
age_type = widgets.Text(placeholder='Enter Age Type',description='Age type:')

genrelist = list()
with conn.cursor() as cursor:
    cursor.execute('select name,genre_id from genre;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        genrelist.append(tup)

genremsel = widgets.SelectMultiple(options=genrelist,description='Select Genres (Max2):',layout=widgets.Layout(width='70%', height='200px'))


Director = widgets.Text(placeholder='Enter Director',description='Director:')
Actor = widgets.Text(placeholder='Enter Actor',description='Actor:')


button = widgets.Button(description="Submit")
output = widgets.Output()


def on_button_clicked(b):
    with output:
        output.clear_output()
        genres = list()
        gen = iter(genremsel.value)
        length = len(genremsel.value)
        for t in range(2):
            if(t < length):
                genres.append(next(gen))
            else:
                genres.append("")
        genreids = tuple(genres)

        print(genreids)

        newdir_id = ''.join(random.choices(string.ascii_letters + string.digits, k=16))
        newact_id = ''.join(random.choices(string.ascii_letters + string.digits, k=16))

        query_insertmovie = ('call new_movie("{mid}","{mtitle}","{mov}","{mduration}","{releaseD}","{orlang}","{agetype}","{g1}","{g2}","{actid}","{actn}","{dctid}","{dctn}");'.format(

        mid = newmovie_id,
        mtitle = Title.value,
        mov = Overview.value,
        mduration = Duration.value,
        releaseD = Release_date.value,
        orlang = original_language.value,
        agetype = age_type.value,
        g1 = genreids[0],
        g2 = genreids[1],
        actid = newact_id,
        actn = Actor.value,
        dctid = newdir_id,
        dctn = Director.value
        ))

        print(query_insertmovie)

        with conn.cursor() as cursor:
            #cursor.execute(query_insertmovie)
            #cursor.execute('commit;')
            print('Movie inserted with ID: ',newmovie_id)

button.on_click(on_button_clicked)


display(Title,Overview,Duration,Release_date,original_language,age_type,genremsel,Director,Actor,button,output)

#director  Woo Min-ho
```

Title: Enter Title

Overview: Enter Overview

Duration: Enter Duration in Hrs

Release_d… Enter Release Date

Original La… Enter Original Language

Age type: Enter Age Type

Select Gen… Documentary, Drama, Family, Fantasy, History, Horror, Music, Mystery, Romance, Science Fiction, TV Movie, Thriller

Director: Enter Director

Actor: Enter Actor

Submit

delete a movie and its shows:

In [15]:
```
#delete a movie and its shows

movielist = list()
with conn.cursor() as cursor:
    cursor.execute('select title,movie_id from movie;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        movielist.append(tup)
selectmov = widgets.Dropdown(options=movielist,description='Select Movie:')
button = widgets.Button(description="Delete")
output = widgets.Output()

def on_button_clicked(b):
    with output:
        output.clear_output()
        with conn.cursor() as cursor:
            cursor.execute('delete from movie where movie_id = "{mid}";'.format(mid = selectmov.value))
        print('Movie deleted.')
button.on_click(on_button_clicked)

display(selectmov,button,output)
```

Select Movie: The Man Standing Next

Delete

Create new Show at a showtime for a selected theatre:

In [16]:
```
#create new show

newshowtime_id = ''.join(random.choices(string.ascii_letters + string.digits, k=16))

movielist = list()
theatrelist = list()
with conn.cursor() as cursor:
    cursor.execute('select title,movie_id from movie;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        movielist.append(tup)
selectmov = widgets.Dropdown(options=movielist,description='Select Movie:')

with conn.cursor() as cursor:
    cursor.execute('select Theatre_name,theatre_id from theatre;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        theatrelist.append(tup)
selecttheatre = widgets.Dropdown(options=theatrelist,description='Select Theatre:')
ticp = widgets.Text(placeholder='Enter Price',description='Ticket Price:')
ticstr = widgets.Text(placeholder='Enter Ticket ID Prefix',description='Ticket ID:')

button = widgets.Button(description="Submit")
output = widgets.Output()
movie_duration = int()
roomlist = list()
selectroom = widgets.Dropdown()
starttime  = widgets.DatetimePicker()
def on_button_clicked(b):
    with output:
        global selectroom, roomlist,movie_duration,starttime
        output.clear_output()
        with conn.cursor() as cursor:
            cursor.execute('select room from seats where Theatre_id = "{theatre}" group by room;'.format(theatre = selecttheatre.value))
            res = cursor.fetchall()
            for i in res:
                r = i[0]
                roomlist.append(r)
        selectroom = widgets.Dropdown(options=roomlist,description='Select Room:')
        display(selectroom)
        starttime  = widgets.DatetimePicker( description='Pick a Time',disabled=False)
        display(starttime)
        with conn.cursor() as cursor:
            cursor.execute('select Duration from movie where movie_id = "{movie}";'.format(movie = selectmov.value))
            res = cursor.fetchall()
            for i in res:
                movie_duration = int(i[0])

button.on_click(on_button_clicked)

display(selectmov,selecttheatre,ticp,ticstr,button,output)
```

Select Movie: The Man Standing Next

Select The… Galaxy - Đà Nẵng

Ticket Price: 80

Ticket ID: 73856add

Submit

Select Room: 2D 4

Pick a Time 12/16/2022 11:10 PM

In [18]:
```
start_time = starttime.value.isoformat()
endtime = starttime.value + timedelta(minutes=movie_duration)
end_time = endtime.isoformat()

query_insertshow = ('call new_showtime("{shid}","{mid}","{theid}","{st}","{endt}","{selroom}",{tp},"{tickstr}");'.format(

    shid = newshowtime_id,
    mid = selectmov.value,
    theid = selecttheatre.value,
    st = start_time,
    endt = end_time,
    selroom = selectroom.value,
    tp = int(ticp.value),
    tickstr = ticstr.value
))

print(query_insertshow)

with conn.cursor() as cursor:
    cursor.execute(query_insertshow)
    cursor.execute('commit;')
    print('Show inserted with ID: ',newshowtime_id)
```

```
call new_showtime("7LfUEE7jHbniEE3t","5f684ec4e5f57c315cac404d","5f68b34045ab693e24bd9d70","2022-12-16T23:10:00-05:00","2022-12-17T01:04:00-05:00","2D 4",80,"73856add");
Show inserted with ID:  7LfUEE7jHbniEE3t
```

delete shows for a movie:

In [19]:
```
# delete shows for a movie
movielist = list()
button = widgets.Button(description="Select")
output = widgets.Output()
with conn.cursor() as cursor:
    cursor.execute('select title,movie_id from movie;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        movielist.append(tup)
selectmovie = widgets.Dropdown(options=movielist,description='Select Movie:')

query_moviegenre = 'select name from genre where genre_id in(select genre_id from movie_genre inner join movie on movie.movie_id = movie_genre.movie_id where movie.movie_id = "{movieid}");'
query_movieactor = 'select full_name from movie inner join movie_actor on movie_actor.movie_id = movie.movie_id inner join movie_cast on movie_cast.cast_id = movie_actor.actor_id  where movie.movie_id = "{movieid}";'
query_moviedirector = 'select full_name from movie inner join movie_director on movie_director.movie_id = movie.movie_id inner join movie_cast on movie_cast.cast_id = movie_director.director_id  where movie.movie_id = "{movieid}";'
query_movie = 'select * from movie where movie_id = "{movieid}";'

def on_button_clicked(b):
    with output:
        with conn.cursor() as cursor:
            genrelist = list()
            actorlist = list()
            directorlist = list()

            cursor.execute(query_movie.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Movie details:')
            for i in res:
                print('Description:')
                print(i[2])
                print('Duration:',end=" ")
                print(i[3])
                print('Release Date:',end=" ")
                print(i[4])
                print('Release Language:',end=" ")
                print(i[5])


            cursor.execute(query_moviegenre.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Genre:',end=" ")
            for i in res:
                genrelist.append(i[0])
            genres = ', '.join(genrelist)
            print(genres)

            cursor.execute(query_moviedirector.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Directed By:',end=" ")
            for i in res:
                directorlist.append(i[0])
            directors = ', '.join(directorlist)
            print(directors)

            cursor.execute(query_movieactor.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            print('Cast:',end=" ")
            for i in res:
                actorlist.append(i[0])
            actors = ', '.join(actorlist)
            print(actors)

button.on_click(on_button_clicked)

display(selectmovie,button,output)
```

Select Movie: The Man Standing Next

Select

```
Movie details:
Description:
In the 1970s, Korea is under the absolute control of the President Park who controls the KCIA, the organization with an edge over any branch of government. The director of KCIA, KIM Gyu-pyeong, is the seemingly most prospective second-in-command. In the midst of reign of fear, a former KCIA director, PARK Yong-gak who knows all about the government’s obscure operations, exiles to th
e U.S. where the investigation of ‘Koreagate’ is underway. As the tension escalates, the stifling political maneuvering by the all second-in-command’s unfolds.
Duration: 114
Release Date: 2020-10-21
Release Language: ko
Genre: Action, Drama
Directed By: Woo Min-ho
Cast: Lee Byung-hun, Lee Sung-min, Kwak Do-won, Lee Hee-jun, Kim So-jin, Seo Hyun-woo, Kim Min-sang, Kim Hong-pa, Park Ji-il, Ji Hyeon-jun
```

In [20]:
```
theatrelist = list()
showlist = list()

button = widgets.Button(description="Select")
output = widgets.Output()

showquery = 'select showtime_id, theatre.theatre_id, theatre.theatre_name,theatre_name,start_time,end_time from showtime inner join movie on showtime.movie_id = movie.movie_id inner join theatre on showtime.theatre_id = theatre.theatre_id where movie.movie_id = "{movieid}" group by start_time,end_time;'

with conn.cursor() as cursor:
    cursor.execute(showquery.format(movieid = selectmovie.value))
    res = cursor.fetchall()
    for i in res:
        st = str(i[2])#+' Time:'+str(i[1]) + ' to ' + str(i[2])
        tup = (st,i[1])
        theatrelist.append(tup)
        theatreset=set(theatrelist)

theatreradio = widgets.RadioButtons(options=theatreset,layout={'width': 'max-content'},description='Theatres:')

showtimeradio = widgets.RadioButtons()

def on_button_clicked(b):
    with output:
        global showtimeradio
        output.clear_output()
        with conn.cursor() as cursor:
            cursor.execute(showquery.format(movieid = selectmovie.value))
            res = cursor.fetchall()
            st = ''
            showlist = list()
            for i in res:
                if (i[1] == theatreradio.value):
                    st = str(i[4]) + ' - ' + str(i[5])
                    tup = (st,i[0])
                    showlist.append(tup)
                    showset=set(showlist)
        showtimeradio = widgets.RadioButtons(options=showset,layout={'width': 'max-content'},description='Shows:')
        display(showtimeradio)


button.on_click(on_button_clicked)

display(theatreradio,button,output)
```

Theatres:

- ◯ Lotte Cinema Đà Nẵng
- ◉ Galaxy - Đà Nẵng
- ◯ Starlight Đà Nẵng

Select

Shows:

- ◯ 2020-10-18 02:00:00 - 2020-10-18 03:54:00
- ◯ 2020-09-23 02:00:00 - 2020-09-23 03:54:00
- ◯ 2022-12-16 23:10:00 - 2022-12-17 01:04:00
- ◯ 2022-12-16 12:26:00 - 2022-12-21 06:26:00
- ◉ 2020-10-18 04:00:00 - 2020-10-18 05:54:00
- ◯ 2020-10-20 04:00:00 - 2020-10-20 05:54:00
- ◯ 2020-10-20 02:00:00 - 2020-10-20 03:54:00
- ◯ 2020-09-23 04:00:00 - 2020-09-23 05:54:00
- ◯ 2022-12-12 21:36:00 - 2022-12-17 15:36:00

In [21]:
```
#cancel a show

#delete a movie and its shows

print('Deleting showtime_id: ',showtimeradio.value)
button = widgets.Button(description="Delete")
output = widgets.Output()

def on_button_clicked(b):
    with output:
        output.clear_output()
        with conn.cursor() as cursor:
            cursor.execute('delete from ticket where Showtime_id = "{shid}";'.format(shid = showtimeradio.value))
            cursor.execute('delete from showtime where Showtime_id = "{sid}";'.format(sid = showtimeradio.value))
        print('Show deleted.')
button.on_click(on_button_clicked)

display(button,output)
```

```
Deleting showtime_id:  5f760e14b4e1ec097c158169
```

Delete

change the prices for a show (add numeric value with +/- sign ex: +10 or -5):

In [22]:
```
#change the prices for a show

print('Updating ticket Proces for showtime_id: ',showtimeradio.value)
button = widgets.Button(description="Update")
output = widgets.Output()
update = widgets.Text(placeholder='Enter Update Value',description='Update by:')

def on_button_clicked(b):
    with output:
        output.clear_output()
        with conn.cursor() as cursor:
            #cursor.execute('update ticket set price = price{upd} where showtime_id = "{shid}";'.format(shid = showtimeradio.value,upd = update.value))
            print('update ticket set price = price{upd} where showtime_id = "{shid}";'.format(shid = showtimeradio.value,upd = update.value))
            #cursor.execute('commit;')
        print('Show Updated.')
button.on_click(on_button_clicked)

display(update,button,output)
```

```
Updating ticket Proces for showtime_id:  5f760e14b4e1ec097c158169
```

Update by: +10

Update

```
update ticket set price = price+10 where showtime_id = "5f760e14b4e1ec097c158169";
Show Updated.
```

See how much money a movie made:

In [25]:
```
# revenue for a movie
movielist = list()
with conn.cursor() as cursor:
    cursor.execute('select title,movie_id from movie;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        movielist.append(tup)
selectmov = widgets.Dropdown(options=movielist,description='Select Movie:')
button = widgets.Button(description="Select")
output = widgets.Output()

def on_button_clicked(b):
    with output:
        output.clear_output()
        with conn.cursor() as cursor:
            cursor.execute('select revenue_generated("{mid}") as Revenue;'.format(mid = selectmov.value))
            res = cursor.fetchall()
            for i in res:
                print('Total revenue generated from movie: {amt}$'.format(amt = i[0]))

button.on_click(on_button_clicked)

display(selectmov,button,output)
```

Select Movie: The Man Standing Next

Select

```
Total revenue generated from movie: 8470000$
```

occupancy ratio of a theatre for a given movie:

In [26]:
```
# occupancy ratio of a theatre for a given movie
movielist = list()
theatrelist = list()
with conn.cursor() as cursor:
    cursor.execute('select title,movie_id from movie;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        movielist.append(tup)
selectmov2 = widgets.Dropdown(options=movielist,description='Select Movie:')

with conn.cursor() as cursor:
    cursor.execute('select theatre_name,theatre_id from theatre;')
    res = cursor.fetchall()
    for i in res:
        tup = (i[0],i[1])
        theatrelist.append(tup)
selectth = widgets.Dropdown(options=theatrelist,description='Select Theatre:')


button = widgets.Button(description="Select")
output = widgets.Output()

def on_button_clicked(b):
    with output:
        output.clear_output()
        with conn.cursor() as cursor:
            cursor.execute('select ratio_booked_seats("{mid}","{thid}");'.format(mid = selectmov2.value,thid=selectth.value))
            res = cursor.fetchall()
            for i in res:
                print('Occupancy Ratio: {r}'.format(r = i[0]))

button.on_click(on_button_clicked)

display(selectmov2,selectth,button,output)
```

Select Movie: The Man Standing Next

Select The… Galaxy - Đà Nẵng

Select

```
Occupancy Ratio: 0.00509338
```

Some stats that the admin can view:

(1) Most popular genre as per number of bookings:

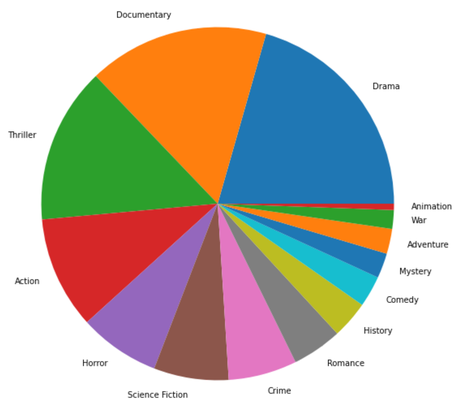
In [25]:
```
#some stats that the admin can view
from pandas import DataFrame
print("most popular genre as per number of bookings:")
query = "select g.name as Genre, count(t.Ticket_id) as Tickets_Sold from genre as g, booking as b, showtime as s, movie as m, movie_genre as mg, ticket as t where b.booking_id=t.Booking_id and s.Showtime_id=b.Showtime_id and s.Movie_id=m.Movie_id and m.Movie_id=mg.Movie_id and mg.Genre_id=g.Genre_id and s.Movie_id=m.Movie_id group by g.name order by tickets_sold desc;"
with conn.cursor() as cursor:
    cursor.execute(query)
    df = DataFrame(cursor.fetchall())
    df.columns = cursor.column_names
    display(df)
```

most popular genre as per number of bookings:

| | Genre | Tickets_Sold |
|---|---|---|
| **0** | Drama | 38 |
| **1** | Documentary | 29 |
| **2** | Thriller | 25 |
| **3** | Action | 20 |
| **4** | Horror | 13 |
| **5** | Science Fiction | 12 |
| **6** | Crime | 11 |
| **7** | Romance | 8 |
| **8** | History | 6 |
| **9** | Comedy | 5 |
| **10** | Mystery | 4 |
| **11** | Adventure | 4 |
| **12** | War | 3 |
| **13** | Animation | 1 |

In [181]:
```
print('most popular genre as per number of bookings')
import matplotlib.pyplot as plt
y = list(df['Genre'])
x = list(df['Tickets_Sold'])
plt.figure(figsize=(10, 10))
plt.pie(x, labels = y)
plt.show()
```

most popular genre as per number of bookings




(2) Revenue of given theatre for each date:

In [194]:
```
#some stats that the admin can view
from pandas import DataFrame
print("Revenue of given theatre for each date:")
query = "select sum(t.price) as Revenue_per_theatre, DATE(s.Start_time) as Date_, tt.Theatre_Name as Theatre from ticket as t, showtime as s, theatre as tt where s.Showtime_id=t.Showtime_id and tt.Theatre_id=s.Theatre_id group by s.Theatre_id, Date_;"
with conn.cursor() as cursor:
    cursor.execute(query)
    df = DataFrame(cursor.fetchall())
    df.columns = cursor.column_names
    display(df)
```

Revenue of given theatre for each date:

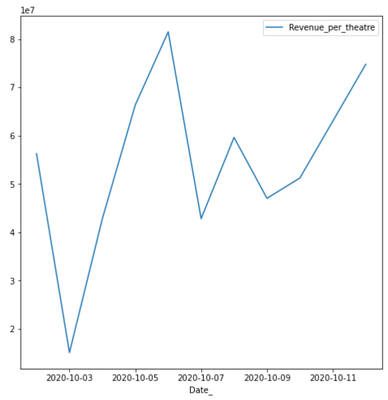
| | Revenue_per_theatre | Date_ | Theatre |
|---|---|---|---|
| **0** | 56280000 | 2020-10-02 | Galaxy - Đà Nẵng |
| **1** | 66360000 | 2020-10-05 | Galaxy - Đà Nẵng |
| **2** | 81480000 | 2020-10-06 | Galaxy - Đà Nẵng |
| **3** | 42840000 | 2020-10-07 | Galaxy - Đà Nẵng |
| **4** | 47040000 | 2020-10-09 | Galaxy - Đà Nẵng |
| **...** | ... | ... | ... |
| **175** | 52200000 | 2020-12-18 | Starlight Đà Nẵng |
| **176** | 47700000 | 2020-12-14 | Lotte Cinema Đà Nẵng |
| **177** | 4500000 | 2020-12-31 | Galaxy - Đà Nẵng |
| **178** | 7650 | 2022-12-16 | Galaxy - Đà Nẵng |
| **179** | 6720 | 2022-12-12 | Galaxy - Đà Nẵng |

180 rows × 3 columns

In [186]:
```
#for theatre galaxy
print('revenue for 10 days for Galaxy cinema:')
galaxydf = df[df['Theatre'] == 'Galaxy - Đà Nẵng']
galaxydf = galaxydf[['Revenue_per_theatre','Date_']]
galaxydf = galaxydf.iloc[:10]
galaxydf['Revenue_per_theatre']=galaxydf['Revenue_per_theatre'].astype(int)
galaxydf[['Revenue_per_theatre','Date_']].plot(x = 'Date_',y = 'Revenue_per_theatre',figsize = (8,8))
```

```
revenue for 10 days for Galaxy cinema:
```

Out[186]:
```
<AxesSubplot:xlabel='Date_'>
```



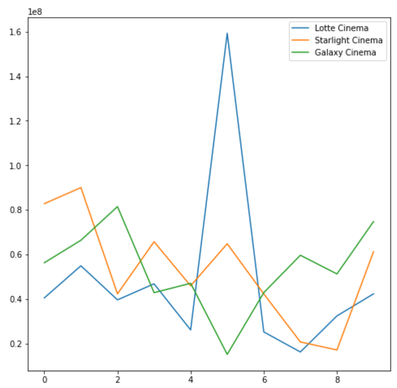

In [150]:
```
gdf = df[df['Theatre'] == 'Galaxy - Đà Nẵng']
gdf = gdf[['Revenue_per_theatre']]
grev = list(gdf['Revenue_per_theatre'])[0:10]
sdf = df[df['Theatre'] == 'Starlight Đà Nẵng']
sdf = sdf[['Revenue_per_theatre']]
srev = list(sdf['Revenue_per_theatre'])[0:10]
ldf = df[df['Theatre'] == 'Lotte Cinema Đà Nẵng']
ldf = ldf[['Revenue_per_theatre']]
lrev = list(ldf['Revenue_per_theatre'])[0:10]
```

In [187]:
```
print("Revenue for 10 days for 3 theaters:")
import matplotlib.pyplot as plt
%matplotlib inline

fig = plt.figure()
plt.figure(figsize=(8, 8))
plt.plot(lrev,label = "Lotte Cinema")
plt.plot(srev,label = "Starlight Cinema")
plt.plot(grev,label = "Galaxy Cinema")
plt.legend()
plt.show()
```

```
Revenue for 10 days for 3 theaters:

<Figure size 432x288 with 0 Axes>
```




(3) Revenue per date:

In [196]:
```
#some stats that the admin can view
from pandas import DataFrame
print("Revenue per date:")
query = "select DATE(s.Start_time) as Date_, sum(t.price) as Revenue from ticket as t, showtime as s where s.Showtime_id=t.Showtime_id group by Date_ order by Date_;"
with conn.cursor() as cursor:
    cursor.execute(query)
    df = DataFrame(cursor.fetchall())
    df.columns = cursor.column_names
    display(df)
```

```
Revenue per date:
```

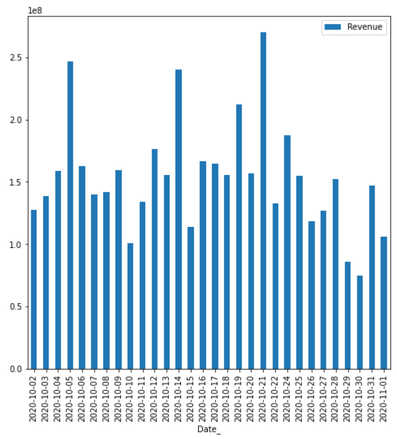
| | Date_ | Revenue |
|---|---|---|
| **0** | 2020-10-02 | 127380000 |
| **1** | 2020-10-03 | 138420000 |
| **2** | 2020-10-04 | 158940000 |
| **3** | 2020-10-05 | 246360000 |
| **4** | 2020-10-06 | 162480000 |
| **...** | ... | ... |
| **61** | 2020-12-17 | 265620000 |
| **62** | 2020-12-18 | 267300000 |
| **63** | 2020-12-31 | 4500000 |
| **64** | 2022-12-12 | 6720 |
| **65** | 2022-12-16 | 7650 |

66 rows × 2 columns

In [193]:
```
print('Total Revenue from ticket Sales for 1 month')
df = df.iloc[:30]
df['Revenue']=df['Revenue'].astype(int)
df[['Revenue','Date_']].plot.bar(x = 'Date_',y = 'Revenue',figsize=(8,8))
```

```
Total Revenue from ticket Sales for 1 month
```

Out[193]: <AxesSubplot:xlabel='Date_'>




(4) Most popular Movies as per number 5 star reviews:

In [171]:
```
#some stats that the admin can view
from pandas import DataFrame
print("most popular Movies as per number 5 star reviews:")
query = "select m.title, count(rate_star) as Number_of_5_star_reviews from rating as r, movie as m where m.Movie_id=r.Movie_id and r.rate_star=5 group by m.title order by Number_of_5_star_reviews desc limit 10;"
with conn.cursor() as cursor:
    cursor.execute(query)
    df = DataFrame(cursor.fetchall())
    df.columns = cursor.column_names
    display(df)
```

```
most popular Movies as per number 5 star reviews:
```

| | title | Number_of_5_star_reviews |
|---|---|---|
| **0** | Confessions of a Time Traveler - The Man from ... | 40 |
| **1** | El Camino: A Breaking Bad Movie | 40 |
| **2** | A Score to Settle | 39 |
| **3** | No Ordinary Man | 37 |
| **4** | A Beautiful Day in the Neighborhood | 35 |
| **5** | De patitas a la calle | 33 |
| **6** | Patients of a Saint | 30 |
| **7** | Blind | 27 |
| **8** | A Quiet Place Part II | 26 |
| **9** | All Day and a Night | 25 |

In [ ]:

In [ ]: