

PREPARATION PHASE

Implementing Web Application

Create IBM DB2 and Connect with Python

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Project Name	Personal Expense Tracker Application

STEPS TO CREATE IBM DB2 AND CONNECTION WITH PYTHON:

STEP 1: Import the ibm_db Python library:

```
!pip install --force-reinstall ibm_db==3.1.0 ibm_db_sa==0.3.7 import ibm_db
```

```
In [21]: import ibm_db
```

STEP 2: Identify the database connection credentials:

```
dsn_hostname = "fbd88901-ebdb-4a4f-a32e-  
9822b9 fb237b.clogj3sd0tgtu0lqde00.databases.appdomain.clou  
d" dsn_uid = "wxs77796" dsn_pwd =  
  
"fv1zsnR7cf2LCSA3" dsn_driver = "{IBM DB2 ODBC  
DRIVER}" dsn_database = "BLUDB" # e.g. "BLUDB" dsn_port  
= "32731" dsn_protocol =  
  
"TCPIP" # i.e. "TCPIP" dsn_security = "SSL"  
#i.e. "SSL"
```

```
In [22]: dsn_hostname = "YourDb2Hostname" # "dashdb-txn-sbox-yp-dal09-04.services.dal.ibmcloud.net"  
dsn_uid = "YourDb2Username" # "abc12345"  
dsn_pwd = "YourDb2Password" # "7d8Z3wWt9XN6$o0J"  
  
dsn_driver = "{IBM DB2 ODBC DRIVER}"  
dsn_database = "BLUDB" # "BLUDB"  
dsn_port = "50000" # "50000"  
dsn_protocol = "TCPIP" # "TCPIP"
```

STEP 3: Create the DB2 database connection:

```
dsn = (  
    "DRIVER={0};"  
    "DATABASE={1};"  
    "HOSTNAME={2};"  
    "PORT={3};"  
    "PROTOCOL={4};"  
    "UID={5};"
```

```

        "PWD={6};"
        "SECURITY={7};").format(dsn_driver, dsn_database, dsn_hostname, dsn_port,
        dsn_protocol, dsn_uid, dsn_pwd,dsn_security) print(dsn) Now establish the connection to
        the database

try: conn = ibm_db.connect(dsn, "", "") print ("Connected to database: ", dsn_database, "as
user: ", dsn_uid, "on host: ", dsn_hostname) except: print
("Unable to connect: ", ibm_db.conn_errormsg() ) server =
ibm_db.server_info(conn)

print ("DBMS_NAME: ", server.DBMS_NAME)
print ("DBMS_VER: ",
server.DBMS_VER) print

("DB_NAME: ", server.DB_NAME)

client = ibm_db.client_info(conn)

print ("DRIVER_NAME: ", client.DRIVER_NAME) print
("DRIVER_VER: ", client.DRIVER_VER) print

("DATA_SOURCE_NAME: ", client.DATA_SOURCE_NAME) print
("DRIVER_ODBC_VER: ", client.DRIVER_ODBC_VER) print
("ODBC_VER: ", client.ODBC_VER) print

("ODBC_SQL_CONFORMANCE: ",
client.ODBC_SQL_CONFORMANCE) print ("APPL_CODEPAGE:
", client.APPL_CODEPAGE) print

("CONN_CODEPAGE: ", client.CONN_CODEPAGE)

```

```

In [23]: dsn = (
        "DRIVER={0};"
        "DATABASE={1};"
        "HOSTNAME={2};"
        "PORT={3};"
        "PROTOCOL={4};"
        "UID={5};"
        "PWD={6};").format(dsn_driver, dsn_database, dsn_hostname, dsn_port, dsn_protocol, dsn_uid, dsn_pwd)
        print(dsn)

```

```

In [24]: try:
        conn = ibm_db.connect(dsn, "", "")
        print ("Connected to database: ", dsn_database, "as user: ", dsn_uid, "on host: ", dsn_hostname)
    except:
        print ("Unable to connect: ", ibm_db.conn_errormsg() )

Connected to database: BLUDB as user: xvj47667 on host: dashdb-txn-sbox-yp-lon02-06.services.eu-gb.ibm.com

```

```
In [25]: server = ibm_db.server_info(conn)

print ("DBMS_NAME: ", server.DBMS_NAME)
print ("DBMS_VER:  ", server.DBMS_VER)
print ("DB_NAME:   ", server.DB_NAME)

DBMS_NAME:  DB2/LINUX8664
DBMS_VER:   11.01.0404
DB_NAME:    BLUDB
```

We will give the query to create the above table.

```
In [14]: createQuery = "create Table CARTOON_CHARACTERS(ID INTEGER PRIMARY KEY NOT NULL, First_Name VARCHAR(20) NOT NULL, Last_Name VARCHAR(20) NOT NULL, Address VARCHAR(100) NOT NULL, City VARCHAR(20) NOT NULL, Age INTEGER NOT NULL)"
create_table = ibm_db.exec_immediate(conn, createQuery)

In [30]: insertQuery = "insert into CARTOON_CHARACTERS values (1, 'Mickey', 'Mouse', '123 Fantasy Way', 'Anaheim', 18), (2, 'Batman', 'Man', '321 Cavern Ave', 'Gotham', 32), (3, 'Wonder Woman', 'Woman', '987 Truth Way', 'Paradise', 28)"
insert_table = ibm_db.exec_immediate(conn, insertQuery)
```

STEP 4: Close the Connection:

```
ibm_db.close(conn)
```

```
In [51]: pd_conn = ibm_db_dbi.Connection(conn)
```

OUTPUT:

```
In [54]: selectQuery = "select * from CARTOON_CHARACTERS"

dataframe = pandas.read_sql(selectQuery, pd_conn)

dataframe
```

Out[54]:

	ID	FIRST_NAME	LAST_NAME	ADDRESS	CITY	AGE
0	1	Mickey	Mouse	123 Fantasy Way	Anaheim	18
1	2	Bat	Man	321 Cavern Ave	Gotham	32
2	3	Wonder	Woman	987 Truth Way	Paradise	28