United Indian School
ABU DHABI

PROJECT RECORD 2022-2023

CRYPTOLOGY

Your solution to keeping track of all your crypto transactions.

Roll No.: _____

Name: _____

Class: _____ Sec: _____

Subject: _____

EDUCATION

Certificate

Roll No. _____

This is to certify that
Miss/Master _____ of
grade _____ section _____
has carried out project work in Assignment prescribed by the Central Board of Secondary Education, New Delhi during the academic year 2022 - 2023.

Teacher-in-charge: Dr. Harini Priyadarshini

Date: _____

_____ _____

External Examiner Internal Examiner

Contents

ACKNOWLEDGEMNENT

First and foremost, I am grateful to the Almighty God for establishing me to complete my project successfully.

I wish to express my deep and sincere gratitude to our Principal, Mr. K. George Mathew for providing me with all the necessary facilities required.

I take this opportunity to record my sincere thanks to all the faculty members for their constant supervision and encouragement.

I am extremely grateful and indebted to my Computer Science teacher, Dr. Harini Priyadarshini, for her sincere and valuable guidance and motivation extended to me throughout the project.

I am thankful to all those who spent their valuable time to find bugs and test the program in every possible use case.

I thank my friends who have helped me immensely in the creation of this project, from giving inspiration for this project to helping me fix the code where it went wrong.

I also place on my record, my sense of gratitude to one and all who, directly or indirectly, have lent their helping hands in this project.

Last but not the least, my parents are also an important inspiration for me. So, with due regards, I express my gratitude towards them.

INTRODUCTION

A cryptocurrency is a digital currency, which is an alternative form of payment created using encryption algorithms. The use of encryption technologies means that cryptocurrencies function both as a currency and as a virtual accounting system.

A lot of people are investing in cryptocurrencies as it is a form of investment and a secondary income, provided the cryptocurrency that one has invested in is doing well.

This inspired me to create a program to help investors ascertain whether their investments are in profit or in loss, to help them make an informed decision about continuing their investment in a particular cryptocurrency.

SYNOPSIS

Cryptology allows one to track and learn about any cryptocurrency they are interested in as well as allow them to keep records of their investments in an all-in-one platform.

The program allows the user to enter details of a particular cryptocurrency that they are interested in and then provides them with the details of its current value. It also provides a database for one to track investments by entering the cryptocurrency they have purchased, the number of shares they own and determines whether the investments are in loss or profit according to the current value.

The program uses the API of a crypto trading platform called Binance to obtain the current value of the cryptocurrency. It also makes use of MySQL to store the value of the crypto.

SYSTEM DESCRIPTION

Python

File Name: `CBSEProject.py`

Import Statements:

```
import requests
import mysql.connector as m
```

Built-in Functions:

connect()	input()	commit()	print()
is_connected()	format()	get()	fetchall()
cursor()	execute()	json()	upper()

User Defined Functions:

add()	view()	crypto()
delete()	update()	viewall()
edit()		

Variables:

a	data	j	quantity	y
b	date	k	rs	yn
ch	e	key	sql	
coin	exchange	l	textprice	
con	f	newkey	typeo	
cursor	g	price	value	
d	idch	profit	x	

MySQL

Database: cryptology

Table 1: buy

```
mysql> desc buy;
+--------------+---------------+------+-----+---------+-------+
| Field        | Type          | Null | Key | Default | Extra |
+--------------+---------------+------+-----+---------+-------+
| type         | varchar(5)    | YES  |     | NULL    |       |
| currency     | varchar(40)   | YES  |     | NULL    |       |
| exchange     | varchar(40)   | YES  |     | NULL    |       |
| quantity     | float(30,10)  | YES  |     | NULL    |       |
| date         | varchar(50)   | YES  |     | NULL    |       |
| value        | float(30,10)  | YES  |     | NULL    |       |
| current_value | decimal(30,10) | YES  |     | NULL    |       |
| profit_loss  | varchar(50)   | YES  |     | NULL    |       |
| id           | varchar(4)    | YES  |     | NULL    |       |
+--------------+---------------+------+-----+---------+-------+
9 rows in set (0.00 sec)
```

Table 2: auth

```
mysql> desc sold;
+------------------+---------------+------+-----+---------+-------+
| Field            | Type          | Null | Key | Default | Extra |
+------------------+---------------+------+-----+---------+-------+
| type             | varchar(5)    | YES  |     | NULL    |       |
| currency         | varchar(40)   | YES  |     | NULL    |       |
| exchange         | varchar(40)   | YES  |     | NULL    |       |
| quantity         | float(30,10)  | YES  |     | NULL    |       |
| date             | varchar(50)   | YES  |     | NULL    |       |
| value_when_bought | float(30,10)  | YES  |     | NULL    |       |
| value_when_sold  | decimal(30,10) | YES  |     | NULL    |       |
| profit_loss      | varchar(50)   | YES  |     | NULL    |       |
| id               | varchar(4)    | YES  |     | NULL    |       |
+------------------+---------------+------+-----+---------+-------+
9 rows in set (0.01 sec)
```

PROGRAM SOURCE CODE

```
import requests
import mysql.connector as m

con = m.connect(host='localhost', user='root', password='root',
database='cryptology')
if con.is_connected():
    print("connection succesful")
else:
    print("connection failed")
cursor = con.cursor()


def add():
    while True:
        ch = input("buy or sell")
        if ch == "buy":
            coin = input("enter cryptocurreny symbol")
            typeo = "buy"
            exchange = input("enter name of exhange")
            quantity = float(input("enter quantity"))
            date = input("enter date of transaction")
            value = float(input("enter value of crypto at the time of
transaction"))
            a = 0
            b = "null"
            idch = input("enter transaction id (example: B001,B002)")
            sql = "insert into buy
values('{}','{}','{}',{},'{}',{},{},'{}','{}')".format(
                typeo, coin, exchange, quantity, date, value, a, b, idch)
            cursor.execute(sql)
            con.commit()
            yn = input("continue y/n?")
            if yn == 'y':
                pass
```

```
            else:
                break
        elif ch == "sell":
            coin = input("enter cryptocurreny symbol")
            typeo = "sell"
            exchange = input("enter name of exhange")
            quantity = float(input("enter quantity"))
            date = input("enter date of transaction")
            value = float(input("enter value of crypto at the time of
buying"))
            vas = float(input("enter value of crypto at the time of sale"))
            a = "null"
            idch = input("enter transaction id (example: S001,S002)")
            sql = "insert into sold
values('{}','{}','{}',{},'{}',{},{},'{}','{}')".format(
                typeo, coin, exchange, quantity, date, value, vas, a, idch)
            cursor.execute(sql)
            con.commit()
            yn = input("continue y/n?")
            if yn == "y":
                pass
            else:
                break
        yn = input("continue y/n?")
        if yn == "y":
            pass
        else:
            break


def delete():
    while True:
        ch = int(input("To delete buy table records press (1)\nTo delete sold
table records press (2)"))
        if ch == 1:
            idch = input("enter transaction id to delete")
            sql = "delete from buy where id = '{}'".format(idch)
```

```
            cursor.execute(sql)
            con.commit()
            yn = input("continue y/n?")
            if yn == "y":
                pass
            else:
                break
        elif ch == 2:
            idch = input("enter transaction id to delete")
            sql = "delete from sold where id = '{}'".format(idch)
            cursor.execute(sql)
            con.commit()
            yn = input("continue y/n?")
            if yn == "y":
                pass
            else:
                break
        yn = input("continue y/n?")
        if yn == "y":
            pass
        else:
            break


def edit():
    while True:
        ch = int(input("To edit 'buy' quantity and value per unit press
(1)\nTo edit 'sold' quantity and value per unit at which it was sold at press
(2)"))
        if ch == 1:
            idch = input("enter transaction id to be updated: ")
            price = float(input("enter new price per unit"))
            qty = float(input("enter new quantity: "))
            sql = "update buy set quantity = {}, value = {} where id =
'{}'".format(qty, price, idch)
            cursor.execute(sql)
            con.commit()
```

```
            yn = input("continue y/n?")
            if yn == "y":
                pass
            else:
                break

        elif ch == 2:
            idch = input("enter transaction id to be updated: ")
            price = float(input("enter new price per unit for which it was
sold at"))
            qty = float(input("enter new quantity: "))
            sql = "update sold set quantity = {}, value_when_sold = {} where
id = '{}'".format(qty, price, idch)
            cursor.execute(sql)
            con.commit()
            yn = input("continue y/n?")
            if yn == "y":
                pass
            else:
                break
        yn = input("continue y/n?")
        if yn == "y":
            pass
        else:
            break


def view():
    # enter the coins transaction that you want to view
    while True:
        coin = input("enter symbol")
        ch = input("buy or sold transactions")
        idch = input("enter id of transaction")

        def update(ch, idch, coin):
            if ch == 'buy':
                a = "select value from buy where id = '{}'".format(idch)
```

```
                cursor.execute(a)
                rs = cursor.fetchall()
                for k in rs:
                    for j in k:
                        key =
"https://api.binance.com/api/v3/ticker/price?symbol = "
                        newkey = key+coin.upper()+'USDT'
                        data = requests.get(newkey)
                        data = data.json()
                        textprice = f"{data['price']}"
                        price = float(textprice)
                        a = j - price
                        if a > 0:
                            profit = "↓ loss ↓"
                        else:
                            profit = '↑ profit ↑'
                        # updates the value as per diff coins everytime they
want to view
                        sql = "update buy set current_value  = {},
profit_loss = '{}' where id = '{}'".format(price, profit, idch)
                        cursor.execute(sql)
                        con.commit()
                    sql = "select * from buy where id = '{}'".format(idch)
                    cursor.execute(sql)
                    rs = cursor.fetchall()
                    for k in rs:
                        for l in k:
                            print("|", l, "|")
                        print()
            elif ch == "sold":
                a = "select value_when_bought from sold where id =
'{}'".format(idch)
                cursor.execute(a)
                rs = cursor.fetchall()
                for k in rs:
                    for j in k:
                        a = float(j)
```

```
                g = "select value_when_sold from sold where id =
'{}'".format(idch)
                cursor.execute(g)
                rs = cursor.fetchall()
                for x in rs:
                    for y in x:
                        b = float(y)
                d = b - a

                if d < 0:
                    profit = '↓ loss ↓'
                    sql = "update sold set profit_loss = '{}' where id =
'{}'".format(profit, idch)
                    cursor.execute(sql)
                    con.commit()

                elif d > 0:
                    profit = '↑ profit ↑'
                    sql = "update sold set profit_loss = '{}' where id =
'{}'".format(profit, idch)
                    cursor.execute(sql)
                    con.commit()
                else:
                    print("error")
                sql = "select * from sold where id = '{}'".format(idch)
                cursor.execute(sql)
                rs = cursor.fetchall()
                for e in rs:
                    for f in e:
                        print("|", f, "|")
            print()

        update(ch, idch, coin)
        yn = input("continue y/n?")
        if yn == "y":
            pass
        else:
```

```
            break


def crypto():
    while True:
        coin = input("enter cryptocurrency symbol")
        key = "https://api.binance.com/api/v3/ticker/price?symbol = "
        newkey = key+coin.upper()+'USDT'
        data = requests.get(newkey)
        data = data.json()
        textprice = f"{data['price']}"
        price = float(textprice)
        print(coin, "value = ", price, "USD")
        yn = input("continue y/n?")
        if yn == "y":
            pass
        else:
            break


def viewall():
    while True:
        ch = input("view all records of BUY table or SOLD table")
        if ch == 'buy':
            sql = "update buy set current_value  =  000, profit_loss =
'NULL'"
            cursor.execute(sql)
            con.commit()
            sql = "select * from buy"
            cursor.execute(sql)
            rs = cursor.fetchall()
            for i in rs:
                for j in i:
                    print(j, end="\t |")
                print()
```

```
            print("profit/loss statement and current value cannot be viewed
in those mode")

        elif ch == 'sold':
            sql = "update sold set profit_loss = 'NULL'"
            cursor.execute(sql)
            con.commit()
            sql = "select * from sold"
            cursor.execute(sql)
            rs = cursor.fetchall()
            for i in rs:
                for j in i:
                    print(j, end="\t |")
                print()

        print("profit/loss statement cannot be viewed in those mode")

        yn = input("continue y/n?")
        if yn == "y":
            pass
        else:
            break


while True:
    ch = int(input(
        """
_____________________________________________________________________________
__
WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.
_____________________________________________________________________________
__
Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:
```

```
Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre
profit loss statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program
_____________________________________________________________________
__
"""))

    if ch == 1:
        add()
    elif ch == 2:
        edit()
    elif ch == 3:
        delete()
    elif ch == 4:
        view()
    elif ch == 5:
        viewall()
    elif ch == 6:
        crypto()
    else:
        print("thank you!")
        break
```

PROGRAM OUTPUT

```
connection succesful

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WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.

_____________________________________________________________________________

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss
statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program

_____________________________________________________________________________

1

buy or sellbuy

enter cryptocurreny symbolbtc

enter name of exhangeUSDT

enter quantity4

enter date of transaction10/15/2021

enter value of crypto at the time of transaction19000

enter transaction id (example: B001,B002)B005

continue y/n?n


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WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.

_____________________________________________________________________________

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss
statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:
```

```
Press (any key) To exit from the program

_____________________________________________________________________________

1

buy or sellsell

enter cryptocurreny symboleth

enter name of exhangeUSDT

enter quantity2

enter date of transaction10/12/2021

enter value of crypto at the time of buying1000

enter value of crypto at the time of sale12000

enter transaction id (example: S001,S002)S005

continue y/n?n


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WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.

_____________________________________________________________________________

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss
statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program

_____________________________________________________________________________

2

To edit 'buy' quantity and value per unit press (1)

To edit 'sold' quantity and value per unit at which it was sold at press (2)1

enter transaction id to be updated: B005

enter new price per unit20500

enter new quantity: 5

continue y/n?n


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WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.

_____________________________________________________________________________
```

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program

2

To edit 'buy' quantity and value per unit press (1)

To edit 'sold' quantity and value per unit at which it was sold at press (2)2

enter transaction id to be updated: S005

enter new price per unit for which it was sold at2500

enter new quantity: 3

continue y/n?n

WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto transactions.

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program

3

To delete buy table records press (1)

To delete sold table records press (2)1

enter transaction id to deleteB001

continue y/n?n

```
WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.

_____________________________________________________________________________

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss
statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program

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4

enter symbolbtc

buy or sold transactionsbuy

enter id of transactionB005

buy    |btc  |USDT       |5.0  |10/15/2021       |20500.0    |20175.3100000000
|↓ loss ↓    |B005       |


continue y/n?y

enter symboleth

buy or sold transactionssold

enter id of transactionS005

sell   |eth  |USDT       |3.0  |10/12/2021       |1000.0     |2500.0000000000  |↑
profit ↑     |S005       |

continue y/n?n



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WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.

_____________________________________________________________________________

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss
statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program
```

```
_____________________________________________________________________________

5

view all records of BUY table or SOLD tablebuy

buy    |btc  |USDT       |5.0  |10/15/2021       |20500.0    |0E-10      |NULL
|B005  |

profit/loss statement and current value cannot be viewed in those mode

continue y/n?y

view all records of BUY table or SOLD tablesold

sell   |btc  |usdt       |35.0       |10/12/21   |21000.0    |20000.0000000000
|NULL  |b001       |

sell   |btc  |usdtc      |2.0  |12/12/12   |12000.0    |15000.0000000000       |NULL
       |s001       |

sell   |btc  |usdtc      |2.0  |12/10/21   |21000.0    |22000.0000000000       |NULL
       |s002       |

sell   |eth  |USDT       |3.0  |10/12/2021       |1000.0     |2500.0000000000  |NULL
       |S005       |

profit/loss statement cannot be viewed in those mode

continue y/n?n



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WELCOME TO CRYPTOLOGY : your solution to keeping track of all your crypto
transactions.

_____________________________________________________________________________

Press (1) To add records to buy or sell table

Press (2) To edit buy or sell table:

Press (3) To delete records from buy or sell table:

Press (4) To display records based on ID of buy or sell table and theyre profit loss
statement:

Press (5) To display all records of buy or sell transactions:

Press (6) To display current value of any cryptocurrency:

Press (any key) To exit from the program

_____________________________________________________________________________

6

enter cryptocurrency symboleth

eth value= 1135.18 USD

continue y/n?y

enter cryptocurrency symbolbtc

btc value= 20189.29 USD

continue y/n?
```

CONCLUSION

This program has successfully demonstrated a program that uses Python and MySQL connectivity can be used to develop a full-fledged application. It provides for a structured and organised method for maintaining data and information. It makes the finest use of the open-source Python programming software and the MySQL database for running the application.

The project helps investors ascertain whether their investments are in profit or in loss, to help them make an informed decision about continuing their investment in a particular cryptocurrency.

The functions of adding, deleting, editing, searching, and sorting records, can be proficiently performed using this program.

The author believes that the app can be further improved by developing a Graphical User Interface (GUI) within Python itself, by using modules such as tkinter.

The app can also be improved by integrating it with other languages, such as HTML, Flask, and Django among others, or by developing a proper executable that runs on PCs.

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