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TASK 1 :

CLIENT

ACCOUNT

BRANCH

ATM

CIT

FOREX

CHEQUES

TASK 2 :

CLIENT (unique_num , name (f_name , m_name , l_name) , sex , address (number , street , city) , contact_detail , ID (Birth_Date , citizen_status , age) , address_proof)

ACCOUNT (unique_num , account_type , transfer_method , branch_code)

BRANCH (branch_code , address (number , street , city) , trading_hour (duration), contact_detail)

ATM (ATM_code , branch_code, cash_available , Filling (date , time))

CIT (ATM_code , contract (start , end))

FOREX (Forex_code , rate_of_exchange)

CHEQUES

TASK 3: blue text is additional comments

CLIENT (unique_num , name (f_name , m_name , l_name) , sex , address (number , street , city) , {contact_detail} , ID (Birth_Date , citizen_status , age) , address_proof)

more than one contact detail

ACCOUNT (unique_num , {account_type} , transfer_method , branch_code)

more than one account-type , eg. 30-day investment account and cheque acc.

BRANCH (branch_code , address (number , street , city) , { trading_hour (duration), contact_detail })

can have multiple contact & trading_hour each for Monday to Sunday.

ATM (ATM_code , branch_code, cash_available , Filling (date , time)).

can fill the ATM more than once to increase cash.

CIT (ATM_code , {contract (start , end)})

an ATM can renew their contract if it ends so there will be multivalued.

FOREX (Forex_code , rate_of_exchange)

CHEQUES

TASK 4 :

Age : CLIENT

Duration : BRANCH

numberofATM : ATM

TASK 5 :

trading_hour : BRANCH

↳ this will be assigned a null value if the day is a public holiday

↳ if this is null, the duration (derived value) will just be zero.

cash_available : ATM

↳ this can be a null value if the ATM is just built and they have not filled it yet so it is assigned a NULL value.

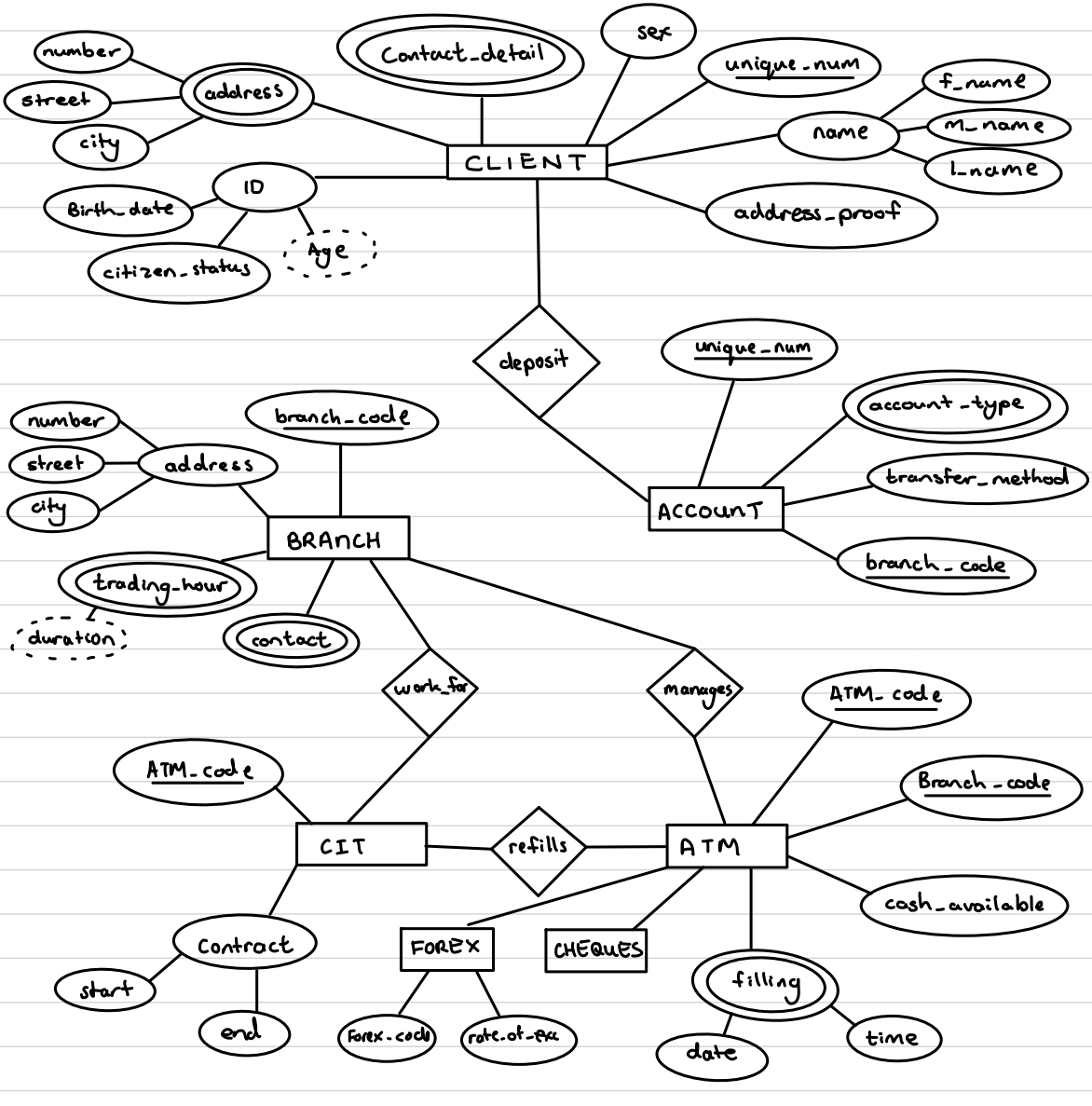
↳ if the ATM runs out of cash it will also be assigned a NULL value.

↳ however the ATM (filling) won't be NULL, because they can book a filling date in advance so this attribute won't be empty.

m_name : CLIENT

↳ this will be assigned a NULL value if the client does not have a middle name.

Conceptual Data Model (Rough Draft)



TASK 6:

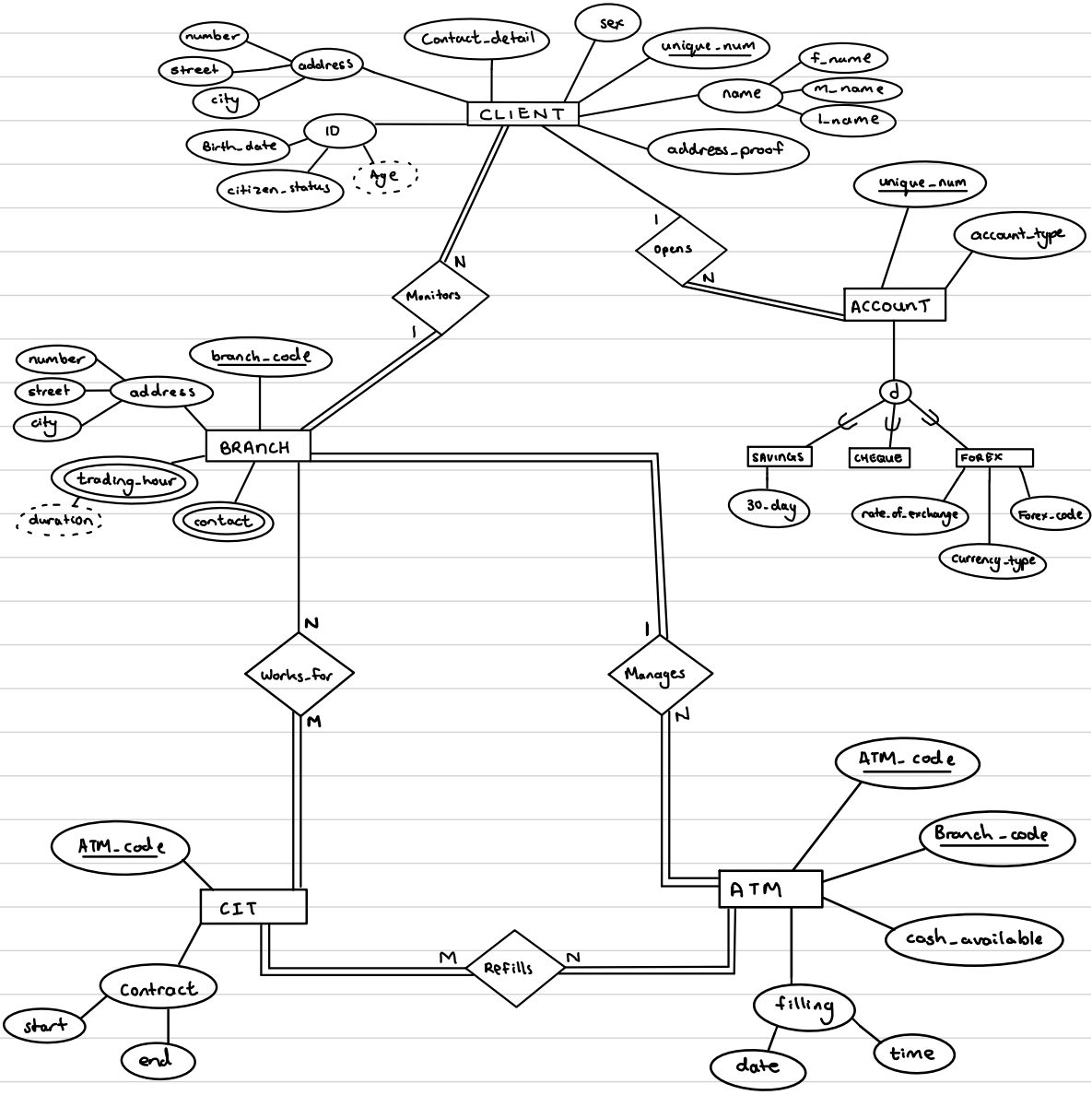
6.1) NO, we need to create a new entity called SAVINGS, which stores multiple account that the client opens, e.g. 30-day saving account. This will inherit from the ACCOUNT entity.

6.2) No, we will need to add an attribute called "currency_type" into the FOREX entity. This will display the different currency that the client used.

6.3) Yes, in the entities BRANCH it caters for multivalued contact details, so the client or branch can add in phone number, email, instagram handle, etc.

6.4) Yes, there is a derived attribute called 'Age' and it is used to check if the client can open a student account (no fee) if they have no reached graduating age. Otherwise, they can upgrade it to a cheque or credit account when they graduate or employed.

TASK 1:


CLIENT
number
street
city
address
Contact_detail
ssn
unique_num
f_name
m_name
l_name
name
ID
Birth_date
citizen_status
Age
address_proof
Monitors
N
1
opens
1
N
ACCOUNT
unique_num
account_type
d
SAVINGS
CHEQUE
FOREX
30_day
rate_of_exchange
Forex_code
currency_type
BRANCH
number
street
city
address
branch_code
trading_hour
duration
contact
N
Works_for
M
1
Manages
N
CIT
ATM_code
Contract
start
end
M
Refills
N
ATM
ATM_code
Branch_code
cash_available
filling
date
time

* Due to no space, the datatype for each attribute will be written underneath each attribute (limit)

CLIENT

CUnique_num	Address_proof	F_name	M_name	L_name	sex	CContact_detail	Cnumber	Cstreet	Ccity	Birth_date	Citizen_status	Age	Bbranch_code
string (20)	boolean	string (25)	string (25)	string (25)	char(1)	string (100)	integer (10)	string (100)	string (50)	date	string (50)	integer(3)	string (50)

ACCOUNT

AUnique_num	Cunique_num	account_type
string (20)	string	string

CHEQUE

CUnique_num
string (20)

SAVINGS

30_day	SUnique_num
string (50)	string (20)

FOREX

Forex_code	Rate_of_exchange	Currency_type	FUnique_num
string (30)	double (10)	string (50)	string (20)

BRANCH

BBranch_code	Bnumber	Bstreet	Bcity	Tduration	Ccontact
string (50)	integer (10)	string (100)	string (50)	integer (5)	string (100)

Trading_Hour

Tnumber	Tstreet	Tcity	Tbranch_code	Tcontact	Tduration
integer (10)	string (100)	string (50)	string (50)	string (100)	integer (5)

Contact

Cnumber	Ccity	Cstreet	Cduration	Cbranch_code	Ccontact
integer (10)	string (50)	string (100)	integer (5)	string (50)	string (100)

ATM

A_ATM_code	ABranch_code	Cash_available	ADate	ATime
string (20)	string (50)	double (10)	date	string (10)

CIT

C_ATM_code	Cstart	Cend
string (20)	date	date