Database System

Entry to An-Najah University

Dr: Hussam A-Halim

Project owners:

Nadeen Haji

Marah zaid

At this time, individuals seek to develop their capabilities and prepare themselves to face the challenges and contribute to this education, and that by completing several levels of study to reach the university specialization in which he dreamed.

To fulfill his dream, the student must enroll in an important and scientifically active university such as An-Najah National University.

An-Najah National University provides this goal through multiple programs. The university includes approximately 86 baccalaureate programs.

We chose to design a database for a new student enrollment system in the university, and accordingly we sat with the Deanship of Admission and Registration at the university - Mr. Omar Al Shakhshir - and provided us with a lot of information and an explanation of the system.

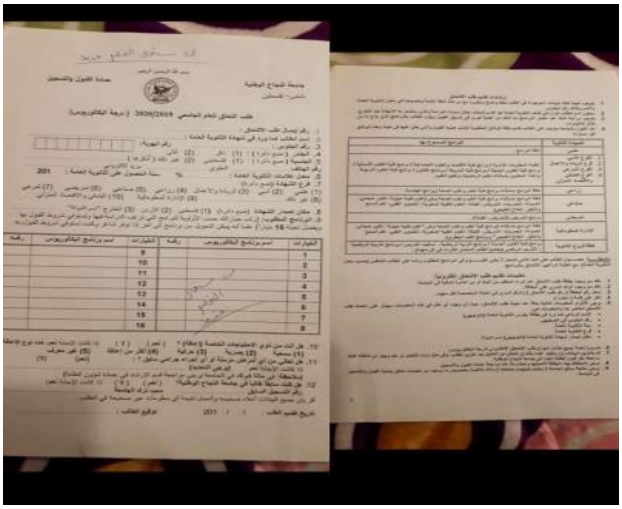
After the completion of the high school exams and before the results appear, the university opens its doors to reserve a study seat for a new student at the university.

The beginning of this process was accomplished through the purchase of the application for enrollment with a value of 35Dinar , and each application has its own number.

The student will have to complete the first form with several information:

Several information:	Meta information:
The form receipt number	The number of the form recommended by the university
Student's name	As mentioned in the high school diploma
Sitting number	It must consist of 5 digits

Identification number	It must consist of 9 digits
Gender	Only two options(Female / male)
Nationality	If not Palestinian, mention it
Phone number	It must consist of 10 digits
E-mail	Must remember the password
High school year	The year the result appears
Secondary School Certificate Branch	Scientific/ literary ..ect
Where to issue the certificate	Name of the country
The required program	Sort 16 options according to priority
People with special needs	If yes, please mention it
Chronic diseases or any previous surgical procedure	If yes please mention
A student at An-Najah University in advance	If yes, state the previous registration number and the reason for leaving the university
Date of form and student signature	Acknowledgment that the information is correct, and bear the student as a result of any unhealthy information



After the high school results appear:

The student who booked a seat and high school grade must follow his example! Documents like:

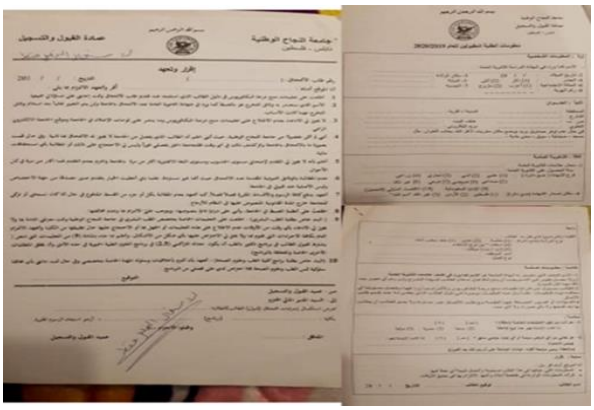
-A notarized certificate of high school transcript.

- A certified copy of the birth certificate.

- A copy of the student ID.

Fill out the second form.

Several information:	Meta information:
The form receipt number	The number of the form recommended by the university
Date of form and student name	Acknowledgment that the information is correct, and bear the student as a result of any unhealthy information
College, program	Desired by the student
Student's name	As mentioned in the high school diploma
Date of birth , Place of birth	
Gender, Religion	
Social status, Nationality	
Identification number	It must consist of 9 digits
Governorate, village, street	
Home number	It must consist of 9 digits
Phone number	It must consist of 10 digits
E-mail	Must remember the password
Mailbox	If you do not have a mailbox, leave a known place for the people of the country next to the address
High school rate	Exactly
High school year	The year the result appears
Secondary School Certificate Branch	Scientific/ literary ..ect
Where to issue the certificate	Name of the country
Type of study	Normal / parallel
A parents are an employee	If yes, state the work name and the type of work
Important information	It should be read well
People with special needs	If yes, please mention it
Chronic diseases or any previous surgical procedure	If yes please mention
Date of form and student signature	Acknowledgment that the information is correct and that the student bears any error in it



After registration, there are some programs such as (Architectural Engineering, College of Arts, College of Sports) need a capacity test . After the student passes this exam, he attaches an acceptance sheet for this specialization with the required papers.

Upon registration, the student brings the university installment and it is calculated (hourly rate * number of hours) in addition to 110 dinars, insurance and internet.

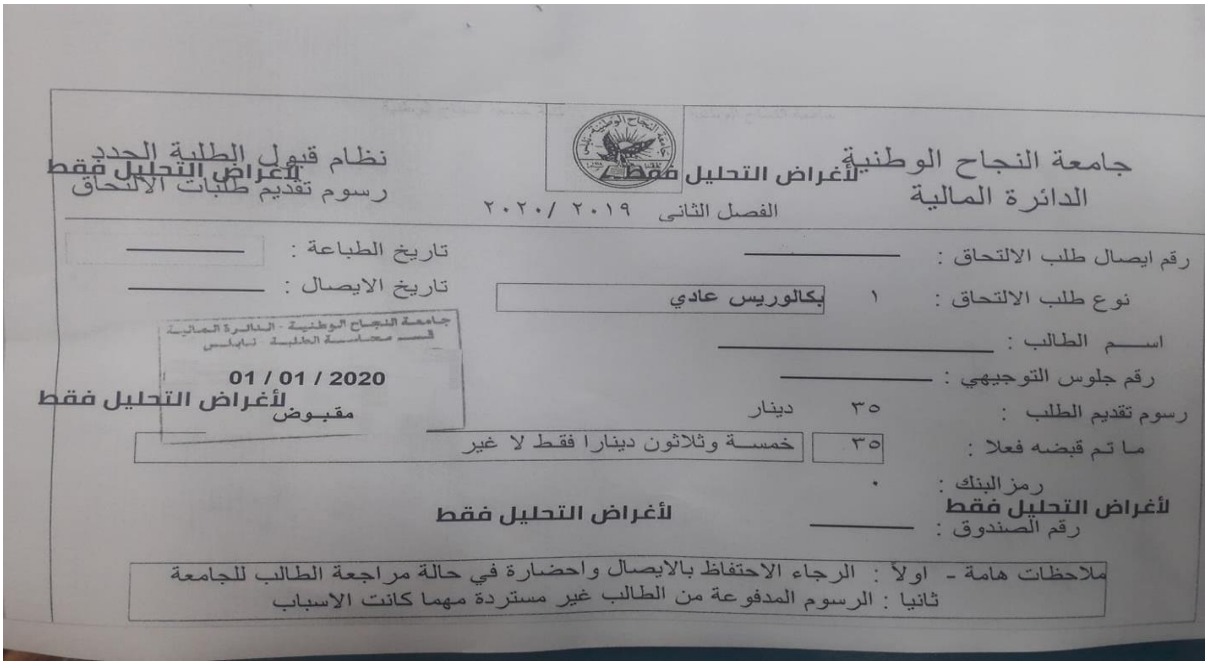
After paying the installment, the student creates a university card that contains "the university logo, the student's photo, the college name, the student's name, the student's registration number" through this card, the student creates a new student account on the university's website (Zajil) to find out through the schedule of the first semester lectures My studies for him, and then he prepares it for the next chapters

Each student at the university has a special registration number in it consisting of 8 numbers. The student number is divided into 3 sections

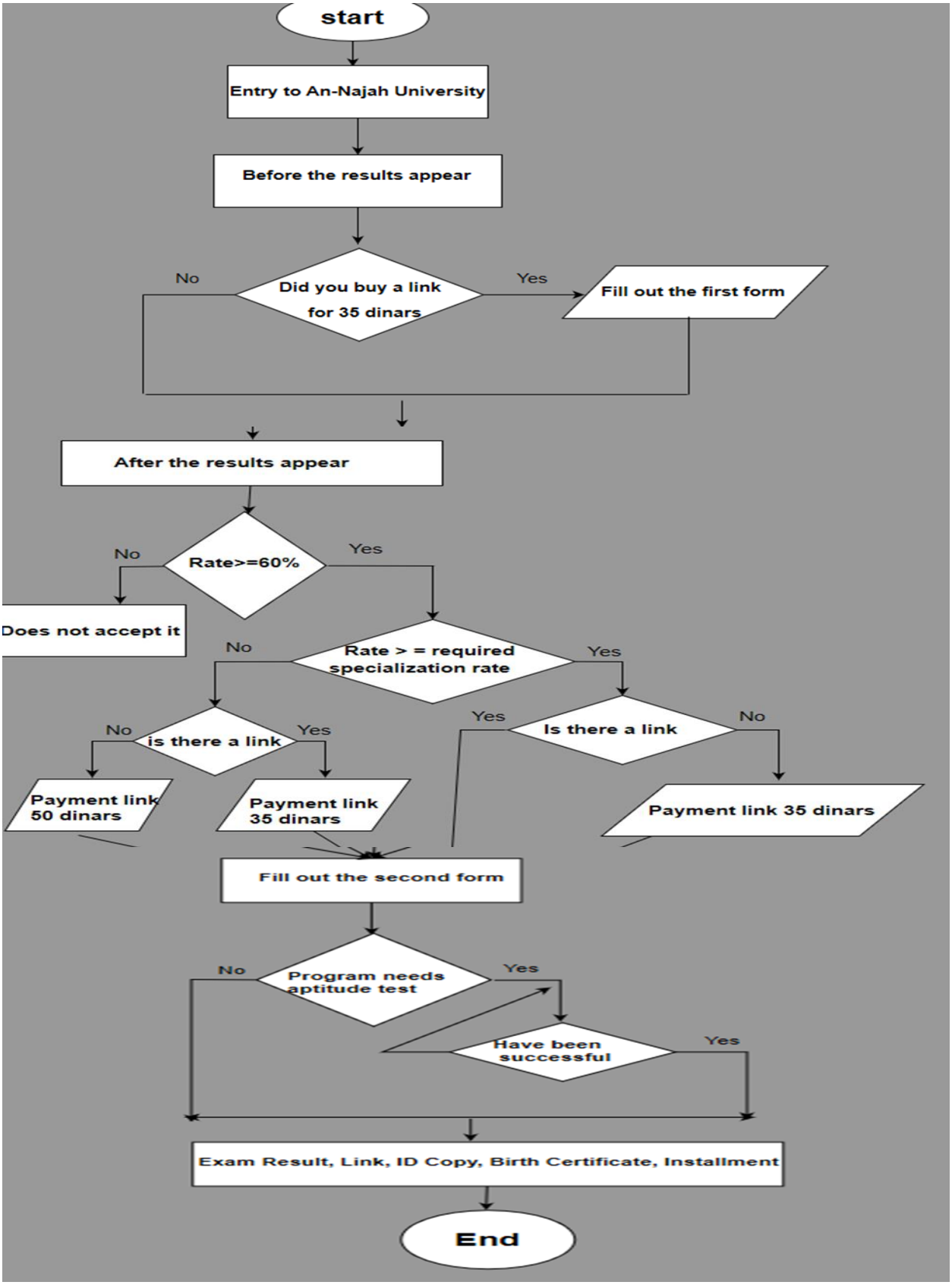
The first section: It contains three numbers, which is the student's batch number.

The second section: It consists of two numbers, and they are the symbol of the student's study type (normal, private).

The third section: It consists of three numbers, which are serial numbers according to the student's registration at the university

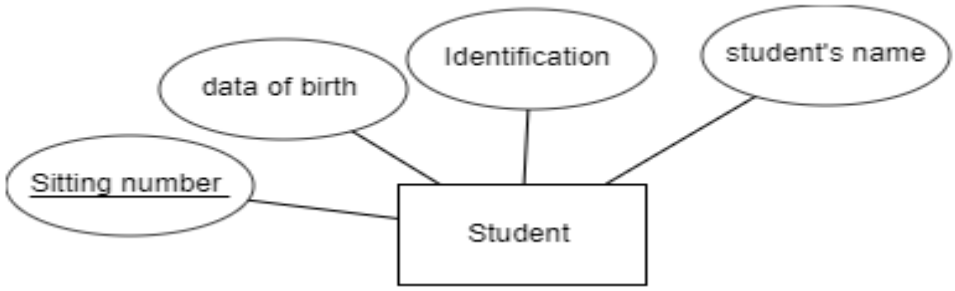

جامعة النجاح الوطنية
الدائرة المالية
لأغراض التحليل فقط
نظام قبول الطلبة الجدد
رسوم تقديم طلبات الالتحاق
لأغراض التحليل فقط
الفصل الثاني ٢٠١٩ / ٢٠٢٠
رقم ايصال طلب الالتحاق :
تاريخ الطباعة :
نوع طلب الالتحاق : ١ بكالوريس عادي
تاريخ الايصال :
اسم الطالب :
رقم جلوس التوجيهي :
رسوم تقديم الطلب : ٣٥ دينار
ما تم قبضه فعلا : ٣٥ خمسة وثلاثون دينارا فقط لا غير
رمز البنك : ٠
رقم الصندوق :
لأغراض التحليل فقط
لأغراض التحليل فقط
جامعة النجاح الوطنية - الدائرة المالية
قسم محاسبة الطلبة - نابلس
01 / 01 / 2020
مقبوض
لأغراض التحليل فقط
ملاحظات هامة - اولاً : الرجاء الاحتفاظ بالايصال واحضارة في حالة مراجعة الطالب للجامعة
ثانيا : الرسوم المدفوعة من الطالب غير مستردة مهما كانت الاسباب

Clarification of the registration process through the flow chart:


start
Entry to An-Najah University
Before the results appear
Did you buy a link for 35 dinars
No
Yes
Fill out the first form
After the results appear
Rate>=60%
No
Yes
Does not accept it
Rate > = required specialization rate
No
Yes
is there a link
No
Yes
Payment link 50 dinars
Payment link 35 dinars
Is there a link
Yes
No
Payment link 35 dinars
Fill out the second form
Program needs aptitude test
No
Yes
Have been successful
Yes
Exam Result, Link, ID Copy, Birth Certificate, Installment
End

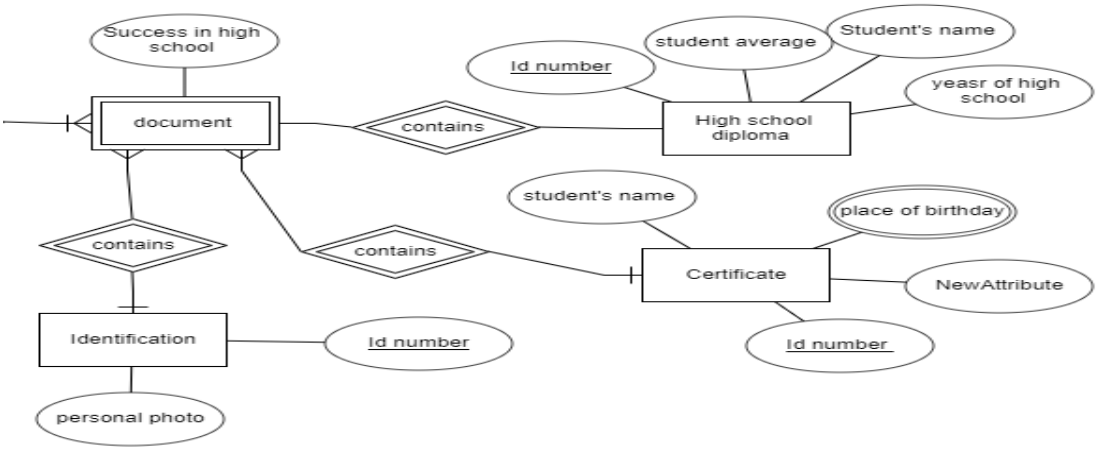
Official matters and the registration confirmation process are completed from the second stage - filling the second form - .

Each student asks for his name and identity number, which consists of 9 numbers, and the indicative year attached to the sitting number, which consists of 5 numbers.



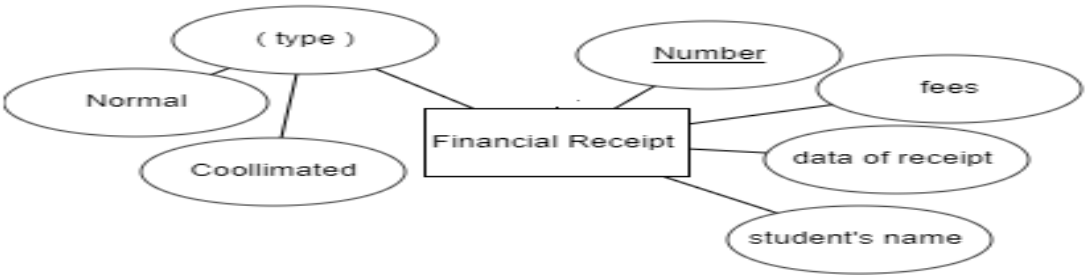
Each student brings documents.

After succeeding in high school, each student brings documents containing the high school certificate, which consists of the student's seat number, name, year of high school diploma and its average.



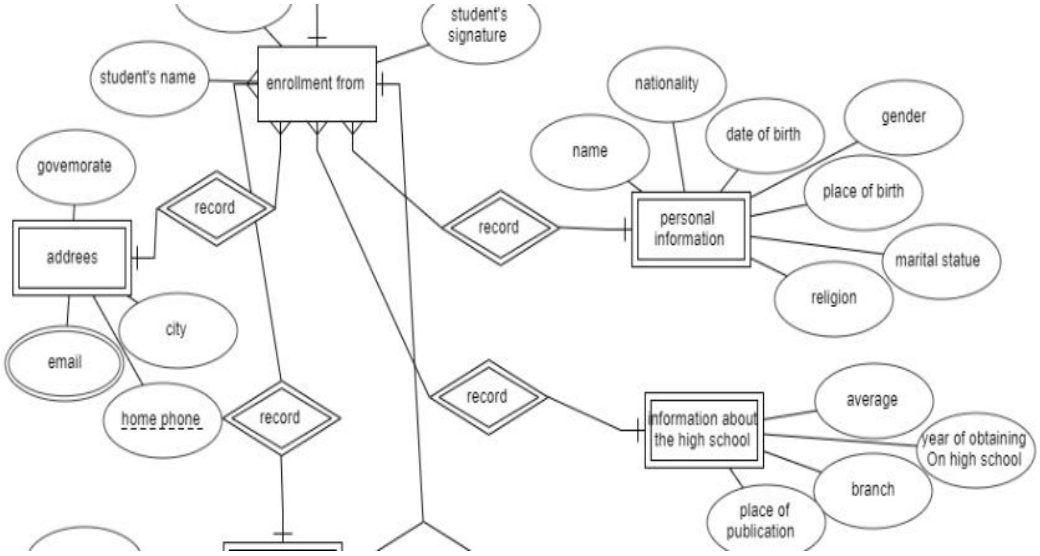
Each student purchases receipt .

Each receipt consisting of his number, name, type (parallel, regular), price, date of issuance, student's name and seating number.



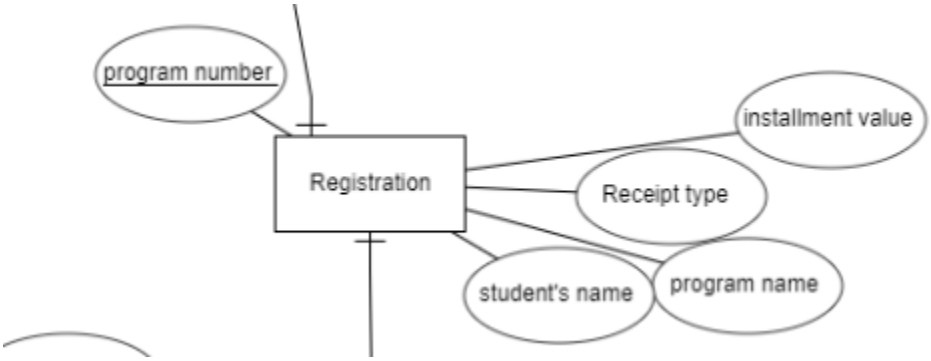
Each student who purchased a receipt filled out the registration form.

After purchasing the receipt, each student fills out the registration form that contains the receipt number and the name of the student each signature form includes personal information about the student, such as name, date of birth, place of birth, religion, nationality, gender, and marital status, as well as the address that contains the province, city, email, and home phone, and consists of information about the high school, such as average, year of obtaining it in The high school, branch, place of publication, also consists of the student's health and contains those with special needs and chronic diseases.



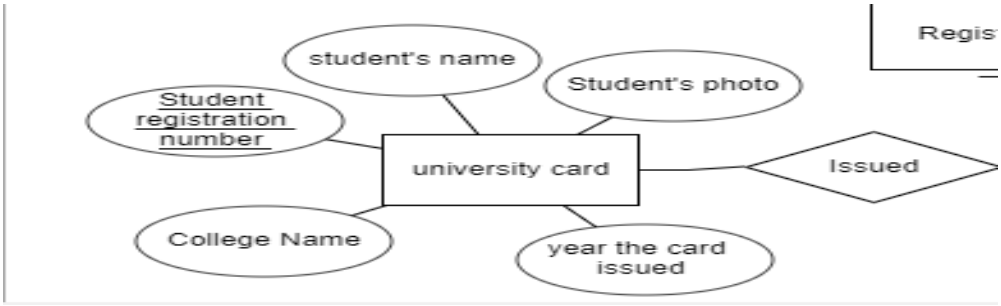
Each student completes a form proving his registration.

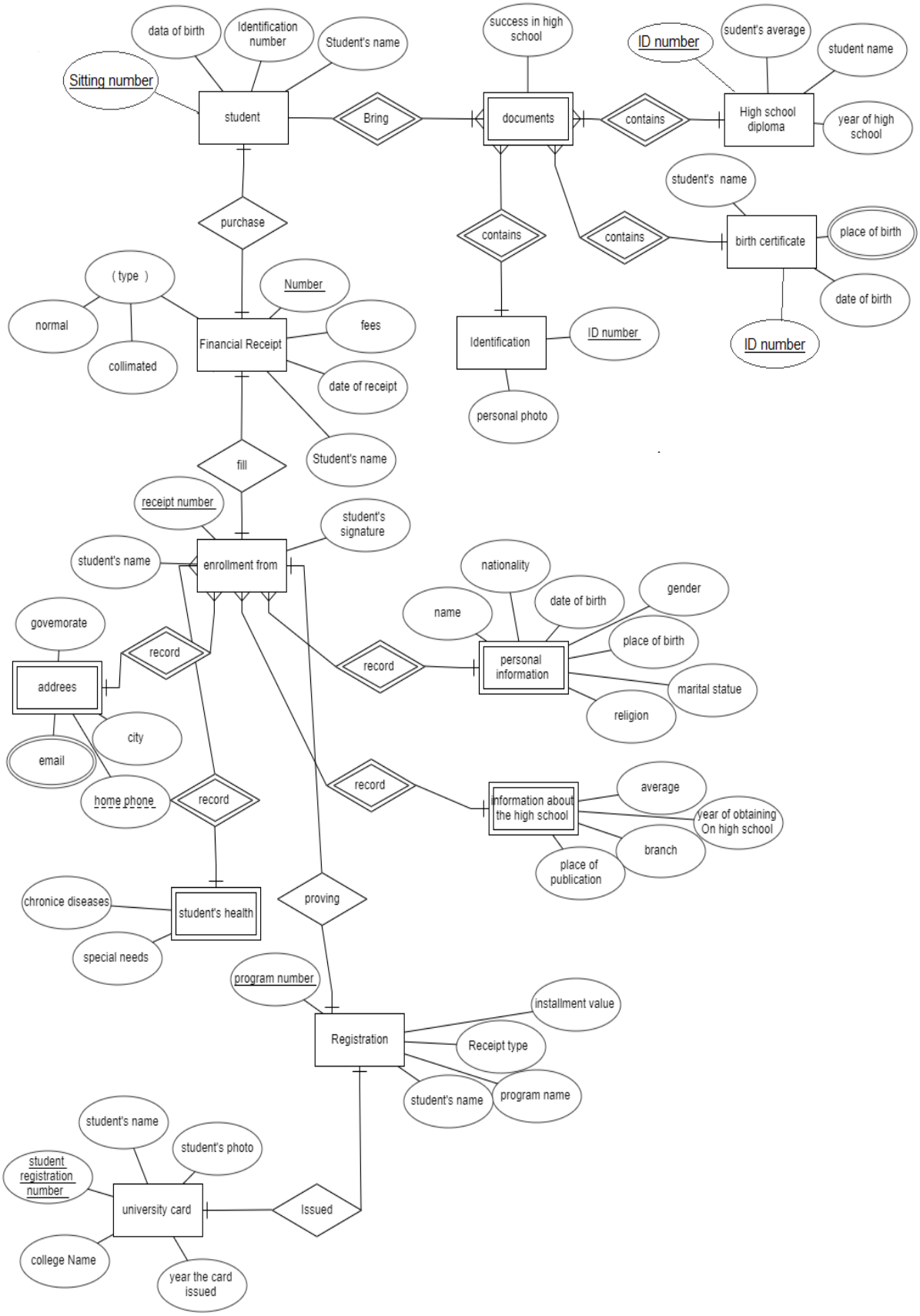
Each registration installation contains the registration number, the Receipt type, the student's name, the Receipt number, the program number, the program name, and the installment value.



After installing the registration, each student issues a university card.

Each student issues a university card consisting of the student's name, photo, registration number, college name and the year the card was issued.




data of birth
Identification number
Student's name
Sitting number
student
Bring
documents
success in high school
ID number
student's average
student name
High school diploma
year of high school
contains
student's name
purchase
contains
contains
birth certificate
place of birth
date of birth
(type)
normal
collimated
Number
Financial Receipt
fees
date of receipt
Student's name
Identification
ID number
personal photo
ID number
fill
receipt number
student's signature
student's name
enrollment from
nationality
name
date of birth
gender
place of birth
marital statue
religion
personal information
govemorate
addrees
city
email
home phone
record
record
record
record
information about the high school
average
year of obtaining On high school
branch
place of publication
chronice diseases
special needs
student's health
proving
program number
Registration
installment value
Receipt type
student's name
program name
student's name
student's photo
student registration number
university card
Issued
college Name
year the card issued

Relational model (RM):

Bring(Student, Document).

Contains(Document, Certificate).

Contains(Document, Birth).

Contains(Document, Identity).

Purchase (Student, Financial receipt).

Fill (Financial receipt, Enrollment form).

Proving(Enrollment form, Registration).

Record(Enrollment, Personal information).

Record(Enrollment, Information about the high school).

Record(Enrollment, Address).

Record(Enrollment, Student's health).

Issued(Registration, University card).

Table name	Primary key	foreign key	Another attributes
Student	Sitting number		Identification number, Data of year, Student's name
Document	success in high school	Sitting number	
Certificate	ID number	Sitting number	Student's average, Year of high school
Birth		ID number	Place of birth
Identity		ID number	
Financial receipt	Number	Sitting number	Fees, Data of receipt, Type, Student name

Enrollment	Receipt number	Sitting number	Student name, Student signature
Address		ID number	Government, City, Email, Home phone
Personal information		Sitting number	Gender, Marital statue National, Religion
Information school		Sitting number	Branch, Average, Place of publication
Student's health		ID number	Special need, Chronicle disease
Registration	Program number	Receipt number	Program name, Receipt type, Installation value, Student name
University card	Student registration number	Receipt number	College name, Year the card issued, Student name

Explained Function dependency and Normalization by entering a sample of data

Student:

Sitting number	Student's name	Data of year	Identification number
17810	Nadeen	1-6-2000	0034868958
58976	Marah	27-9-2000	0095643674
25479	Yazan	25-4-1999	0047622657
58964	Ahmad	5-4-1998	0098574968

Function dependency:

Sitting number $\longrightarrow$ Identification number

Sitting number $\longrightarrow$ Data of year

Sitting number $\longrightarrow$ Student's name

(Sitting number, Identification number) $\longrightarrow$ Data of year

(Sitting number, Identification number) ⟶ Student's name

(Sitting number, Student's name) ⟶ Data of year

(Sitting number, Student's name) ⟶ Identification number

(Sitting number, Data of year) ⟶ Identification number

(Sitting number, Data of year) ⟶ Student's name

Normalization:

The table it's in 1NF.

To be in 2NF must satisfy 2 conditions:

- Be on 1NF.
- Non –key attributes must depend on all key not part of it (fully functionality).

So, (sitting number) is the primary key and Identification Number, student's name with Date of birth.

Depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

- Being on 2NF.
- Not transitive.

Student relation is on 2NF (step before)

And since it is binary relation ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because sitting number determine each non-key attributes

Individual , no non-key attributes determine anther no non-key attributes

So sitting number only determine each attributes.

Documents:

Sitting number	success in high school
17810	Yes
58976	Yes
25479	Yes
58964	No

Function dependency:

success in high school ⟶ Sitting number

Normalization:

Contains an attribute In addition to a foreign key

Certificate:

ID number	Sitting number	Student's average	Year of high school
0034868958	17810	80	2017
0095643674	58976	60	2017
0047622657	25479	90	2016

Function dependency:

ID number ⟶ Sitting number

ID number ⟶ Student's average

ID number ⟶ Year of high school

(ID number , Sitting number) ⟶ Student's average

(ID number , Sitting number) ⟶ Year of high school

(ID number , Student's average) ⟶ Sitting number

(ID number , Student's average) ⟶ Year of high school

(ID number , Year of high school) ⟶ Sitting number

(ID number , Year of high school) ⟶ Student's average

Normalization:

The table it's in 1NF.

To be in 2NF must satisfy 2 conditions:

•Be on 1NF.

•Non –key attributes must depend on all key not part of it (fully functionality).

So, (sitting number) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

• Being on 2NF.

• Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because ID number determine each non-key attributes.

Individual , no non-key attributes determine anther no non-key attributes.

So ID number only determine each attributes.

Birth:

ID number	Place of birth
0034868958	Burqa
0095643674	Nablus
0047622657	Burqa

Function dependency:

ID number ⟶ Place of birth

Normalization:

The table contains multi value attribute ,but the table just have 2 attribute so it's in 1NF.

To be in 2NF must satisfy 2 conditions:

•Be on 1NF.

•Non –key attributes must depend on all key not part of it (fully functionality).

So, (sitting number) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

• Being on 2NF.

• Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because ID number determine each non-key attributes.

Individual , no non-key attributes determine anther no non-key attributes.

So ID number only determine each attributes.

Identity:

ID number
0034868958
0095643674
0047622657

Function dependency:

ID number ⟶ Place of birth

Normalization:

Contains an attribute In addition to a foreign key

Financial receipt:

Number	Sitting number	Fees	Data of receipt	Type	Student name
11765789	17810	35	18-8-2017	Normal	Nadeen
34567932	58976	50	20-8-217	Collimated	Marah
45678923	25479	35	18-8-2016	Normal	Yazan

Function dependency:

Number ⟶ Sitting number

Number ⟶ Fees

Number ⟶ Data of receipt

Number ⟶ Type

Number ⟶ Student name

(Number , Sitting number) ⟶ Fees

(Number , Sitting number) ⟶ Data of receipt

(Number , Sitting number) ⟶ Type

(Number , Sitting number) ⟶ Student name

(Number , Fees) ⟶ Sitting number

(Number , Fees) ⟶ Data of receipt

(Number , Fees) ⟶ Type

(Number , Fees) ⟶ Student name

(Number , Data of receipt) ⟶ Fees

(Number , Data of receipt) ⟶ Sitting number

(Number , Data of receipt) ⟶ Type

(Number , Data of receipt) ⟶ Student name

(Number , Type) ⟶ Fees

(Number , Type) ⟶Data of receipt

(Number , Type) ⟶ Sitting number

(Number , Type) ⟶Student name

(Number , Student name) ⟶ Fees

(Number , Student name) ⟶ Data of receipt

(Number , Student name) ⟶ Type

(Number , Student name) ⟶ Sitting number

Normalization:

The table contains composite attribute ,so it's not in 1NF.

The solution:

Number	Sitting number	Fees	Data of receipt	Student name
11765789	17810	35	18-8-2017	Nadeen
34567932	58976	50	20-8-217	Marah
45678923	25479	35	18-8-2016	Yazan

Number	Type
11765789	Normal
34567932	Collimated
45678923	Normal

Name of table one is financial receipt, and the second table is type of financial receipt.

For two table above:

To be in 2NF must satisfy 2 conditions:

- Be on 1NF.
- Non –key attributes must depend on all key not part of it (fully functionality).

So, (Number) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

•Being on 2NF.

•Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because number determine each non-key attributes.

Individual , no non-key attributes determine anther no non-key attributes.

So number only determine each attributes.

Enrollment:

Receipt number	Sitting number	Student name
11765789	17810	Nadeen
34567932	58976	Marah
45678923	25479	Yazan

Function dependency:

Receipt number ⟶Sitting number

Receipt number ⟶Student name

(Receipt number , Sitting number) ⟶ Student name

(Receipt number , Student name) ⟶ Sitting number

(Receipt number, Student name) ⟶ Student signature

Normalization:

The table it's in 1NF.

To be in 2NF must satisfy 2 conditions:

•Be on 1NF.

•Non –key attributes must depend on all key not part of it (fully functionality).

So, (sitting number) is the foreign key and other attributes .

Depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

•Being on 2NF.

•Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because Receipt number determine each non-key attributes.

Individual , no non-key attributes determine anther no non-key attributes.

So Receipt number only determine each attributes.

Address:

ID number	Government	City	Email	Home phone
0034868958	Palestinian National Authority	Nablus	Nadeenhaji120@gmail.com	2530579
0095643674	Palestinian National Authority	Nablus	Marahzaid9@gmail.com	2530594
0047622657	Palestinian National Authority	Nablus	Yazanhatim8@gmail.com	2530358

Function dependency:

ID number ⟶Government

ID number ⟶City

ID number ⟶ Email

ID number ⟶ Home phone

(ID number , Government) ⟶ City

(ID number , Government) ⟶ Email

(ID number , Government) ⟶ Home phone

(ID number , City) ⟶ Government

(ID number City) ⟶ Email

(ID number , City) ⟶ Home phone

(ID number , Email) ⟶ Government

(ID number , Email) ⟶ City

(ID number , Email) ⟶ Home phone

(ID number , Home phone) ⟶ Government

(ID number , Home phone) ⟶ City

(ID number , Home phone) ⟶ Email

Normalization:

The table contains composite attribute ,so it's not in 1NF.

The solution:

ID number	Government	City	Email	Home phone
0034868958	Palestinian National Authority	Nablus	Nadeenhaji120@gmail.com	2530579
0095643674	Palestinian National Authority	Nablus	Marahzaid9@gmail.com	2530594
0047622657	Palestinian National Authority	Nablus	Yazanhatim8@gmail.com	2530358

ID number	Email
0034868958	Nadeenhaji120@gmail.com
0095643674	Marahzaid9@gmail.com
0047622657	Yazanhatim8@gmail.com

Name of table one is Address, and the second table is E-Address

For two table above:

To be in 2NF must satisfy 2 conditions:

•Be on 1NF.

•Non –key attributes must depend on all key not part of it (fully functionality).

So, (ID number) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions

•Being on 2NF.

•Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because home number determine each non-key attributes.

Individual , no non-key attributes determine anther no non-key attributes.

So home number only determine each attributes.

Personal information:

Sitting number	Gender	Marital statue	National	Religion

17810	Female	Unmarried	Palestinian	Muslim
58976	Female	married	Palestinian	Muslim
25479	Male	Unmarried	Palestinian	Muslim

Function dependency:

Sitting number $\longrightarrow$ Gender

Sitting number $\longrightarrow$ Marital statue

Sitting number $\longrightarrow$ National

Sitting number $\longrightarrow$ Religion

(Sitting number, Gender) $\longrightarrow$ Marital statue

(Sitting number, Gender) $\longrightarrow$ National

(Sitting number, Gender) $\longrightarrow$ Religion

(Sitting number, Marital statue) $\longrightarrow$ Gender

(Sitting number, Marital statue) $\longrightarrow$ National

(Sitting number, Marital statue) $\longrightarrow$ Religion

(Sitting number, National) $\longrightarrow$ Gender

(Sitting number, National) $\longrightarrow$ Marital statue

(Sitting number, National) $\longrightarrow$ Religion

(Sitting number, Religion) $\longrightarrow$ Marital statue

(Sitting number, Religion) $\longrightarrow$ Gender

(Sitting number, Religion) $\longrightarrow$ National

Normalization:

The table contains multi value attribute ,but the table just have 2 attribute so it's in 1NF.

To be in 2NF must satisfy 2 conditions:

- Be on 1NF.
- Non –key attributes must depend on all key not part of it (fully functionality).

So, (sitting number) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

•Being on 2NF.

•Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because no non-key attributes determine anther no non-key attributes.

Information school:

Sitting number	Branch	Average	Place of publication
17810	Scientific	80	Palestine
58976	literary	60	Palestine
25479	Scientific	90	Palestine

Function dependency:

Sitting number $\longrightarrow$ Branch

Sitting number $\longrightarrow$ Average

Sitting number $\longrightarrow$ Place of publication

(Sitting number, Branch) $\longrightarrow$ Average

(Sitting number, Branch) $\longrightarrow$ Place of publication

(Sitting number, Average) $\longrightarrow$ Branch

(Sitting number, Average) $\longrightarrow$ Place of publication

Normalization:

The table contains multi value attribute ,but the table just have 2 attribute so it's in 1NF.

To be in 2NF must satisfy 2 conditions:

•Be on 1NF.

•Non –key attributes must depend on all key not part of it (fully functionality).

So, (sitting number) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

•Being on 2NF.

•Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because no non-key attributes determine anther no non-key attributes.

Student's health

ID number	Special need	Chronicle disease
0034868958	No	No
0095643674	No	No
0047622657	No	No

Function dependency:

ID number ⟶ Special need

ID number ⟶ Chronicle disease

(ID number , Special need) ⟶ Chronicle disease

(ID number , Chronicle disease) ⟶ Special need

Normalization:

The table contains multi value attribute ,but the table just have 2 attribute so it's in 1NF.

To be in 2NF must satisfy 2 conditions:

- Be on 1NF.
- Non –key attributes must depend on all key not part of it (fully functionality).

So, (ID number) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

- Being on 2NF.
- Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because no non-key attributes determine anther no non-key attributes.

Registration:

Program number	Receipt number	Program name	Receipt type	Student name	Installation value
85974598	11765789	Computer systems	Normal	Nadeen	780
26579157	34567932	Management systems	Collimated	Marah	870
25974136	45678923	computer science	Normal	Yazan	689

Function dependency:

Program number ⟶ Receipt number

Program number ⟶ Program name

Program number ⟶ Receipt type

Program number ⟶ Installation value

Program number ⟶ Student name

(Program number, Receipt number) ⟶ Program name

(Program number, Receipt number) ⟶ Receipt type

(Program number, Receipt number) ⟶ Installation value

(Program number, Receipt number) ⟶ Student name

(Program number, Program name) ⟶ Receipt number

(Program number, Program name) ⟶ Receipt type

(Program number, Program name) ⟶ Installation value

(Program number, Program name) ⟶ Student name

(Program number, Receipt type) ⟶ Receipt number

(Program number, Receipt type) ⟶ Program name

(Program number, Receipt type) ⟶ Installation value

(Program number, Receipt type) ⟶ Student name

(Program number, Installation value) ⟶ Receipt number

(Program number, Installation value) ⟶ Program name

(Program number, Installation value) ⟶ Receipt type

(Program number, Installation value) ⟶ Student name

(Program number, Student name) ⟶ Receipt number

(Program number ,Student name) ⟶ Program name

(Program number, Student name) ⟶ Receipt type

(Program number, Student name) ⟶ Installation value

Normalization:

The table contains multi value attribute ,but the table just have 2 attribute so it's in 1NF.

To be in 2NF must satisfy 2 conditions:

- Be on 1NF.
- Non –key attributes must depend on all key not part of it (fully functionality).

So, (receipt) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

- Being on 2NF.
- Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because Program number determine each non-key attributes.

Individual , no non-key attributes determine anther no non-key attributes.

So Program number only determine each attributes.

University card:

Student registration number	Receipt number	College name	Year the card issued	Student name
11820080	11765789	IT	2017	Nadeen
11829384	34567932	IT	2017	Marah
11723949	45678923	IT	2016	Yazan

Function dependency:

Student registration number=SR

SR ⟶ Receipt number

SR ⟶ College name

SR ⟶ Year the card issued

SR ⟶ Student name

(SR, Receipt number) ⟶ College name

(SR, Receipt number) ⟶ Year the card issued

(SR, Receipt number) ⟶ Student name

(SR, College name) ⟶ Receipt number

(SR, College name) ⟶ Year the card issued

(SR, College name) ⟶ Student name

(SR, Year the card issued) ⟶ Receipt number

(SR, Year the card issued) ⟶ College name

(SR, Year the card issued) ⟶ Student name

(SR, Student name) ⟶ Receipt number

(SR , Student name) ⟶ College name

(SR, Student name) ⟶ Year the card issued

Normalization:

The table contains multi value attribute ,but the table just have 2 attribute so it's in 1NF.

To be in 2NF must satisfy 2 conditions:

- Be on 1NF.
- Non –key attributes must depend on all key not part of it (fully functionality).

So, (receipt) is the foreign key and other attributes depend on all key not apart of it .

So it is fully functionality.

It is on 2NF.

To be in 3NF must satisfy 2 conditions:

•Being on 2NF.

•Not transitive.

Certificate relation is on 2NF (step before)

And all attributes depends on key attribute ,it is not transitive.

So, it is on 3NF.

It is also on BCNF because registration number determine each non-key attributes.

Individual , no non-key attributes determine anther no non-key attributes.

So registration number only determine each attributes.

Create tables using sql：

```
SQL> create table student18(sitting number(5)primary key,
  2  idnumber number(9),
  3   stname varchar(9),
  4  birthnumber number(8));

Table created.


SQL>
SQL> create table  document4 (succeed varchar(4) ,
  2  sitting number(5) not null unique,
  3  foreign key (sitting )references student18);

Table created.



SQL> create table  certificate1( idno number(9) primary key,
  2   sit number(5) not null unique,
  3  avgnumber number(2),
  4        year number(4),
  5  foreign key (sit) references student18);

Table created.
```

```
SQL>
SQL> create table birthd1 (placebirth varchar (10),
  2  IDno number(9) not null unique,
  3  foreign key (IDno) references certificate1);

Table created.


SQL> create table   Identity2 ( idn number(9) not null unique,
  2  foreign key (idn) references certificate1);

Table created.



SQL>
SQL> Create table receiptt4( pnumber number(8)primary key,
  2  seating number(8),
  3  studentname varchar(9),
  4  fees number(2),
  5  datennumber number(8),
  6  sit number(5) not null unique,
  7  foreign key (sit) references student18);

Table created.


SQL> Create table typefinancialreceipt( pnumber number(8)primary key,
  2  type varchar(7),
  3  sit number(5) not null unique,
  4  foreign key (sit) references student18);

Table created.

SQL>
SQL> Create table enrollmentt(receiptn number(8) primary key,
  2  sit number(5) not null unique,
  3  foreign key (sit) references student18);

Table created.


SQL> create table address20 (hphone number(10) primary key,
  2  goverment varchar (20),
  3   city varchar (15),
  4  idno number(9) not null unique,
  5  foreign key (idno) references Identity1);

Table created.


SQL> create table Eaddress (hphone number(10) primary key,
  2  email varchar (30),
  3  idno number(9) not null unique,
  4  foreign key (idno) references Identity1);

Table created.
```

```
SQL> create table personalin(
  2  nationality varchar(10),
  3  gender varchar(5),
  4  maritalstatus   varchar(5),
  5  religion varchar(6),
  6  sit number(5) not null unique,
  7  foreign key (sit) references student18);

Table created.


SQL>
SQL> create table schoolinf1(  average number(3),
  2   branch  varchar (6),
  3  placepublic varchar (8),
  4  sit number(5) not null unique,
  5  foreign key (sit) references student18);

Table created.

SQL> create table sthealth1 ( specialneeds varchar (6),
  2   chronice varchar (6),
  3  idno number(9) not null unique,
  4  foreign key (idno) references Identity1);

Table created.

SQL>
SQL> create table registion2 (pronum number (8)primary key,
  2  installment varchar (8),
  3  receepit varchar (7),
  4  proname varchar (10),
  5  receiptt  number(6) not null unique,
  6  foreign key (receiptt) references receiptt1);

Table created.

SQL>
SQL> create table university2 (registration number (8) primary key,
  2  college varchar (10),
  3  issuedcard number (8),
  4  receiptt  number(6) not null unique,
  5  foreign key (receiptt) references receiptt1);

Table created.
```