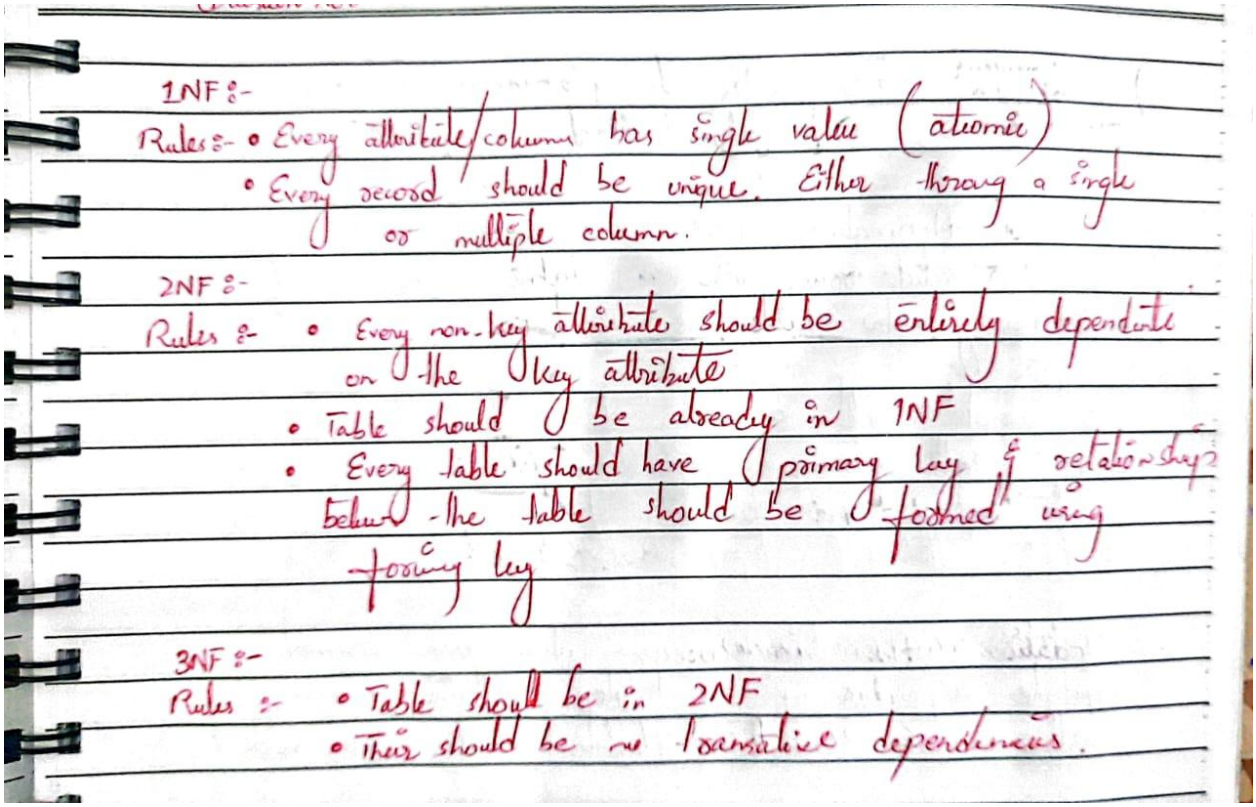
DB ASSIGNMENT 3
K21-3906

QUESTION_1
Rules:



1NF

1NF								
Project_code	Project_name	Project_Manager_Name	Project_budget	Employee ID	Employee Name	Department_no.	Department_name	Hourly_Rate
P-10	Inventory management system	John Smith	$10,000.00	E-100	Emily	D-1	Quality Assurance	$10.00
P-10	Inventory management system	John Smith	$10,000.00	E-101	Anna	D-3	R & D department	$12.50
P-10	Inventory management system	John Smith	$10,000.00	E-102	Jamal	D-2	IT department	$11.50
P-11	Supply chain management system	Carlos Silva	$20,000.00	E-103	Maria	D-3	R & D department	$15.50
P-11	Supply chain management system	Carlos Silva	$20,000.00	E-104	Samuel	D-2	IT department	$14.50
P-11	Supply chain management system	Carlos Silva	$20,000.00	E-105	Ethan	D-1	Quality Assurance	$13.50

2NF

2NF

Project_Table

Project_code	Project_name	P_Manager_First_Name	Project_budget
P-10	Inventory management system	John Smith	$10,000.00
P-11	Supply chain management system	Carlos Silva	$20,000.00

Employee_Table

Employee ID	Employee Name	Hourly_Rate
E-100	Emily	$10.00
E-101	Anna	$12.50
E-102	Jamal	$11.50
E-103	Maria	$15.50
E-104	Samuel	$14.50
E-105	Ethan	$13.50

Department_Table

Department_no.	Department_name
D-1	Quality Assurance
D-3	R & D department
D-2	IT department

Relations_Table

Employee ID	Department_no.	Project_code
E-100	D-1	P-10
E-101	D-3	P-10
E-102	D-2	P-10
E-103	D-3	P-11
E-104	D-2	P-11
E-105	D-1	P-11
PK-FK	**FK**	**FK**

3NF

3NF

Project_Budget

Project_code	Project_budget
P-10	$10,000.00
P-11	$20,000.00

In project table project budget depend upon the Managers first name as we can easily tell that if name is jhon then budget is 10000, this indicate Transitive dependency

Project_Table

Project_code	Project_name	P_Manager_Name
P-10	Inventory management system	John Smith
P-11	Supply chain management system	Carlos Silva

There are no transitive dependency in any other table

QUESTION_2

Question no. 3 Date:

1) For the above mentioned table
PK → {SID, CID} also called composite primary key

2) Insertion Anomalies occurs when we cannot insert a valid row into a table because of the way the table is structured.

we cannot insert a row for a student who is taking a course but does not exist in the student table, because student table is not normalized.

Updation Anomalies occurs when we cannot update a value in a table without causing other values in the table to be inconsistent.

if we update FName attribute of faculty then we need to update the FName every where in the table cause data is Redundant & table is not normalized This can also lead to FName not being update in all the records which can cause inconsistency

Date:

3) Converting table upto 3NF

Student

PK ← SID	SName	Major	Campus_L
10056	Liam	CS	123 Main street
10489	Marlin	IS	456 Avenue

Course

PK ← CID	Course_Title
CS2001	Database
CS2005	Operating System
IS2014	Vulnerability Assessment
IS2048	Reverse Engineering

Faculty

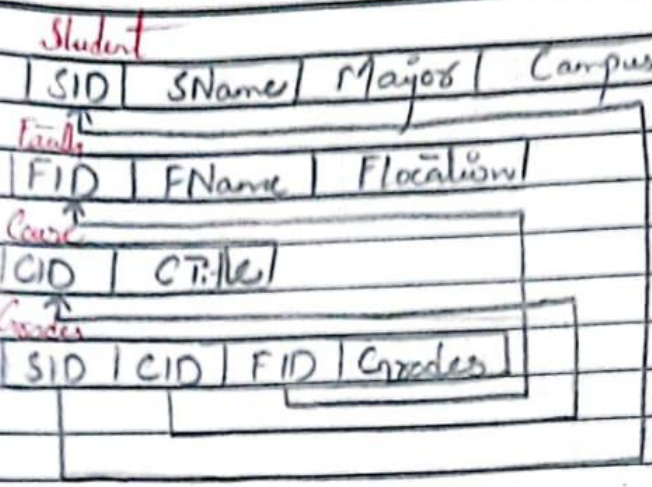
PK ← FID	FName	Flocation
F-1	Laura	R-15
F-2	Johns	R-18
F-3	Brown	R-18
F-4	Sam	R-09

Grade — composite primary key

PK ← SID	CID	FID	Grade
1056	CS2001	F-1	A
1056	CS2005	F-2	B
0489	CS2001	F-1	C
0489	IS2014	F-3	B
10459	IS2048	F-4	A
	FK	FK	FK

Relational Schema Date:

4)



Referential Integrity — Constraints

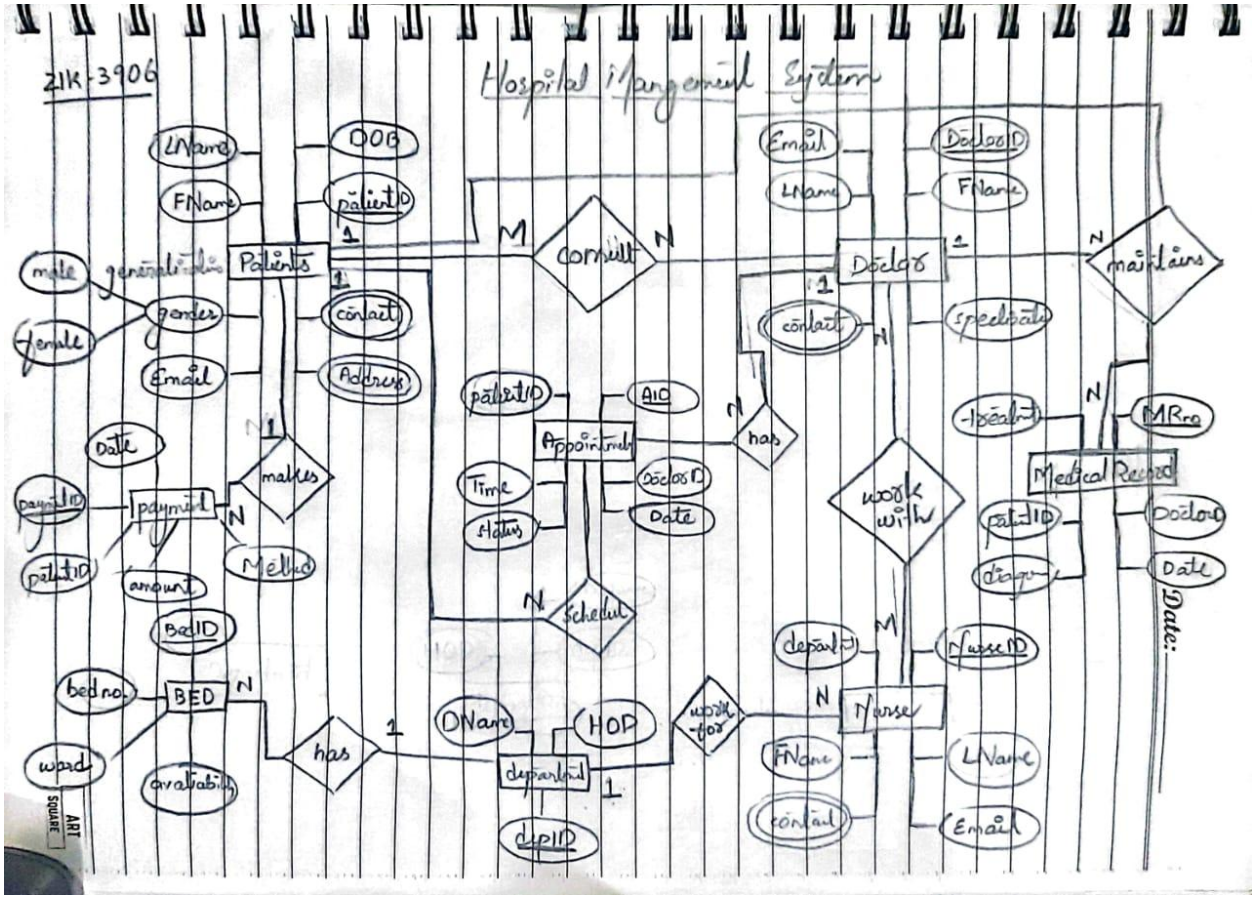
1) ALTER TABLE Grades
ADD CONSTRAINT fk_SID_Ref FOREIGN KEY (SID)
REFERENCES Student (SID).

2) ALTER TABLE Grads
ADD CONSTRAINT fk_CID_Ref
FOREIGN KEY (CID)
REFERENCES Cource (CID)

3) ALTER TABLE Grades
ADD CONSTRAINT fk_FID_Ref
FOREIGN KEY (FID) REFERENCES Faculty (FID).

ART SQUARE

QUESTION_3



ZIK-3906
Hospital Mangement System
LName
DOB
FName
patientID
Patients
male
generalization
female
gender
contact
Email
Address
Date
payment
payment ID
patient ID
amount
makes
Method
BedID
bed no.
BED
ward
availability
has
DName
HOD
department
depID
Schedul
Appointment
patient ID
AID
Time
Status
Doctor ID
Date
M
Consult
N
has
work for
Email
Doctor ID
LName
FName
Doctor
contact
specialization
work with
department
Nurse ID
Nurse
FName
LName
contact
Email
maintains
treatment
MRno
Medical Record
patient ID
Doctor ID
diagnosis
Date
Date:
ART SQUARE