IT-214 DBMS

TeamID - T304

Freelance Management System

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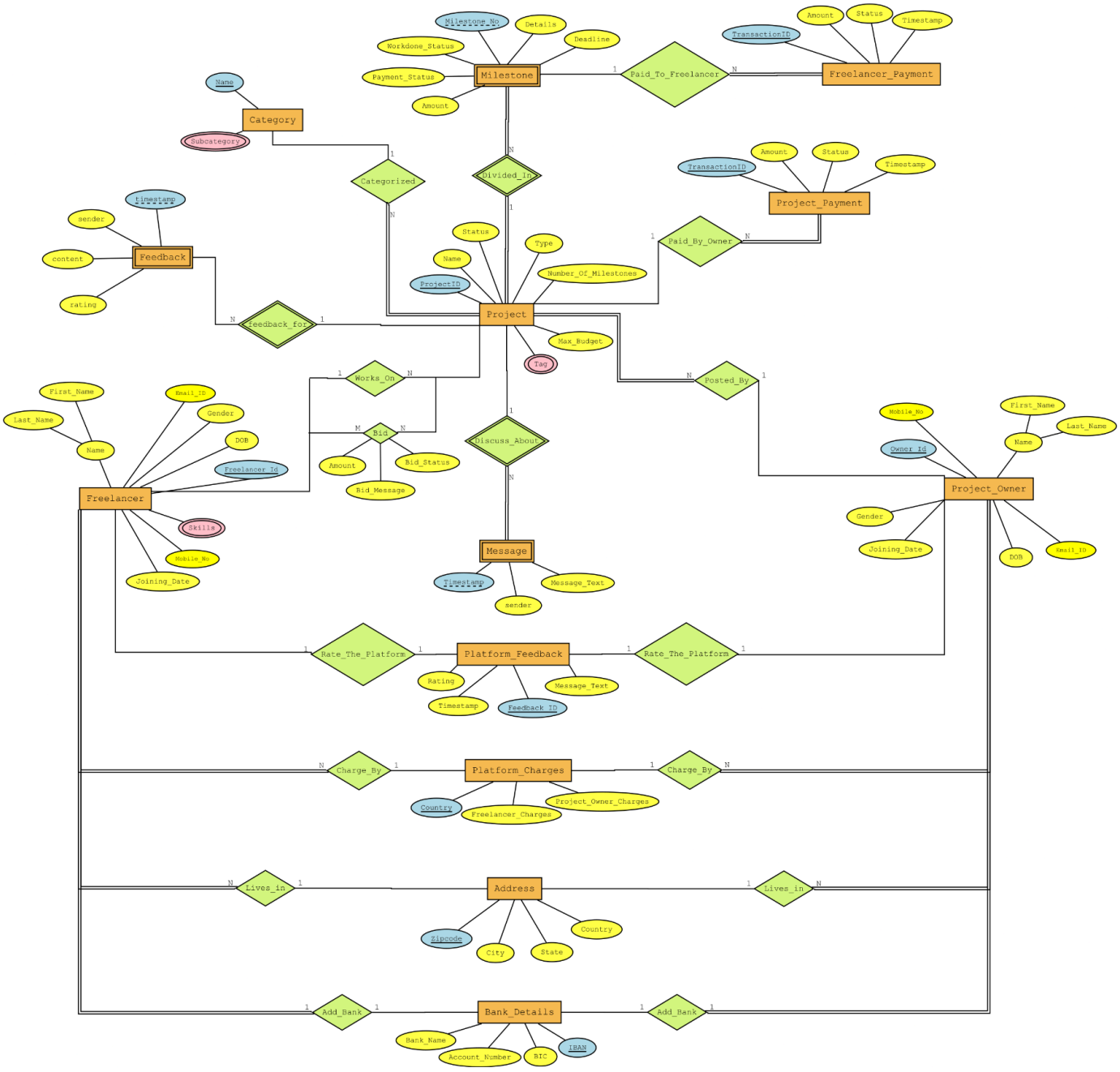
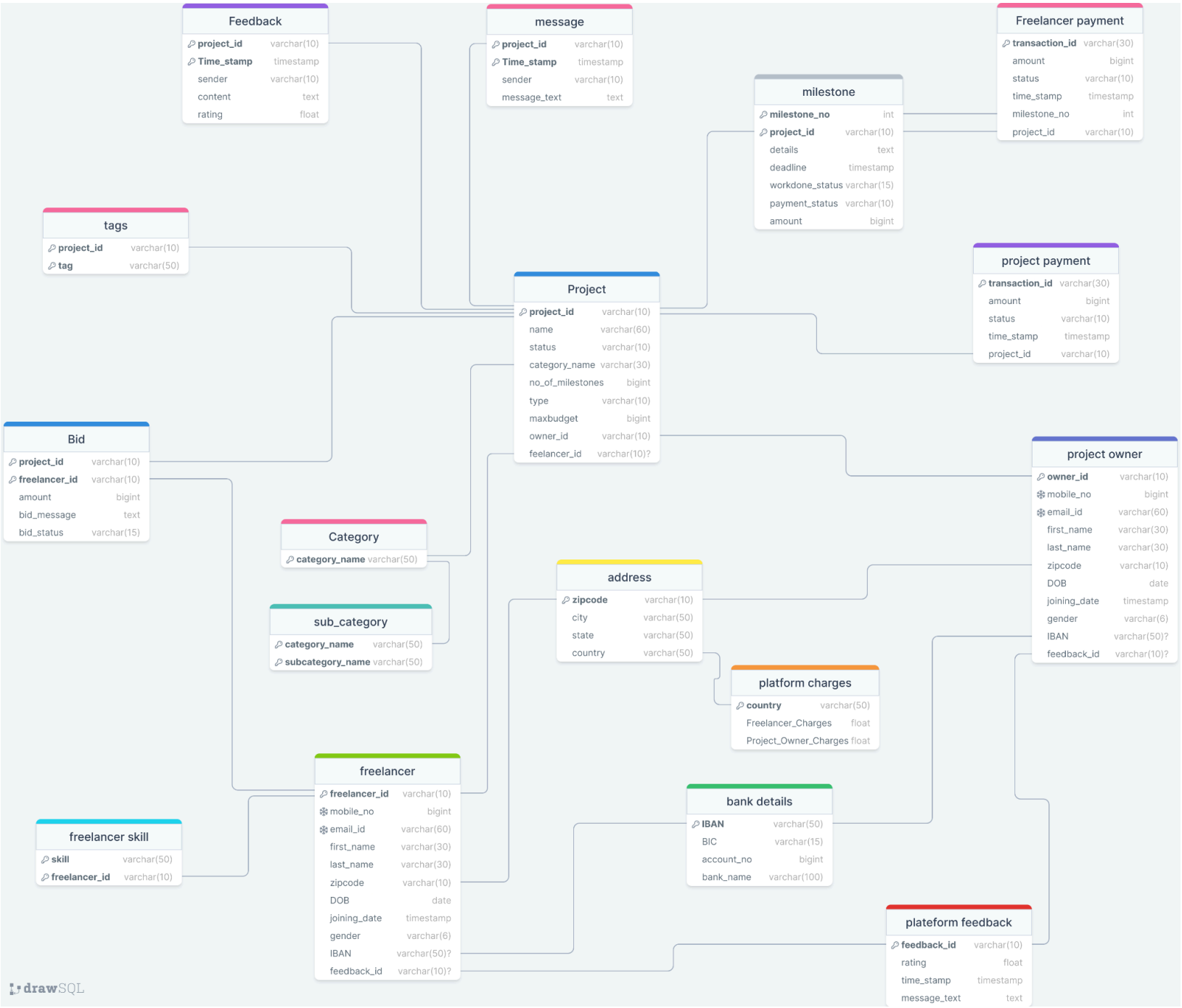
ER Diagram


Milestone_No
Details
Deadline
Workdone_Status
Payment_Status
Amount
Milestone
Paid_To_Freelancer
TransactionID
Amount
Status
Timestamp
Freelancer_Payment
Name
Category
Subcategory
Categorized
Divided_In
TransactionID
Amount
Status
Timestamp
Project_Payment
timestamp
sender
content
Feedback
rating
Status
Type
Name
ProjectID
Number_Of_Milestones
Paid_By_Owner
Feedback_for
Project
Max_Budget
Tag
Works_On
Posted_By
First_Name
Email_ID
Last_Name
Gender
Name
DOB
Freelancer_Id
Bid
Amount
Bid_Status
Bid_Message
Discuss_About
Mobile_No
First_Name
Last_Name
Owner_Id
Name
Project_Owner
Gender
Joining_Date
DOB
Email_ID
Freelancer
Skills
Mobile_No
Joining_Date
Message
Timestamp
Message_Text
sender
Rate_The_Platform
Platform_Feedback
Rate_The_Platform
Rating
Message_Text
Timestamp
Feedback_ID
Charge_By
Platform_Charges
Charge_By
Country
Freelancer_Charges
Project_Owner_Charges
Lives_in
Address
Lives_in
Zipcode
City
State
Country
Add_Bank
Bank_Details
Add_Bank
Bank_Name
Account_Number
BIC
IBAN

Relational Diagram



Normalization Proofs

‘Freelancer’ Relation

Freelancer(freelancer_id, mobile_no, email_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id)
Key: freelancer_id
FKs: IBAN, feedback_id

Minimal FD:

freelancer_id → {mobile_no, email_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id}

email_id → {mobile_no, freelancer_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id}

mobile_no → {freelancer_id, email_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id}

Closure of freelancer_id, email_id and mobile_no (individually) is the whole relation. Hence all the three are keys.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Project’ Relation

Project(project_id, name, status, category_name,
no_of_milestones, type, max_budget, owner_id, feelancer_id)
Key: project_id
FKs: category_name, owner_id, feelancer_id

Minimal FD:

project_id → name
project_id → status
project_id → category_name
project_id → no_of_milestones
project_id → type
project_id → maxbudget
project_id → owner_id
project_id → feelancer_id

Closure of project_id = {project_id, name, status,
category_name, no_of_milestones, type, max_budget, owner_id,
feelancer_id}

Hence, project_id is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Project Owner’ Relation

Project_Owner(owner_id, mobile_no, email_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id)
Key: owner_id
FKs: zipcode, IBAN, feedback_id

Minimal FD:

owner_id → {mobile_no, email_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id}

email_id → {mobile_no, freelancer_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id}

mobile_no → {freelancer_id, email_id, first_name, last_name, zipcode, DOB, joining_date, gender, IBAN, feedback_id}

Closure of owner_id, email_id and mobile_no (individually) is the whole relation. Hence all the three are keys.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Milestone’ Relation

Project(milestone_no, project_id, details, deadline, workdone_status, payment_status, amount)
Key: { milestone_no, project_id }
FKs: project_id

Minimal FD:

{ milestone_no, project_id } → details
{ milestone_no, project_id } → deadline
{ milestone_no, project_id } → workdone_status
{ milestone_no, project_id } → payment_status
{ milestone_no, project_id } → amount

Closure of { milestone_no, project_id } = {milestone_no, project_id, details, deadline, workdone_status, payment_status, amount}

Hence, { milestone_no, project_id } is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Freelancer Payment’ Relation

Freelancer_Payment(transaction_id, amount, status, time_stamp, milestone_no, project_id)
Key: transaction_id
FKs: {milestone_no, project_id}

Minimal FD:

transaction_id → amount
transaction_id → status
transaction_id → time_stamp
transaction_id → milestone_no
transaction_id → project_id

Closure of transaction_id = {transaction_id, amount, status, time_stamp, milestone_no, project_id}

Hence, transaction_id is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Project Payment’ Relation

Project_Payment(transaction_id, amount, status, time_stamp, project_id)
Key: transaction_id
FKs: project_id

Minimal FD:

transaction_id → amount
transaction_id → status
transaction_id → time_stamp
transaction_id → project_id

Closure of transaction_id = {transaction_id, amount, status, time_stamp, project_id}

Hence, transaction_id is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Message’ Relation

Message(project_id, Time_stamp, sender, message_text)
Key: { project_id, Time_stamp }

Minimal FD:

{ project_id, Time_stamp } → sender
{ project_id, Time_stamp } → message_text

Closure of { project_id, Time_stamp } = {project_id, Time_stamp, sender, message_text}

Hence, { project_id, Time_stamp } is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Feedback’ Relation

Feedback(project_id, Time_stamp, sender, content, rating)
Key: { project_id, Time_stamp }

Minimal FD:

{ project_id, Time_stamp } → sender
{ project_id, Time_stamp } → content
{ project_id, Time_stamp } → rating

Closure of { project_id, Time_stamp } = {project_id, Time_stamp, sender, content, rating}

Hence, { project_id, Time_stamp } is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Tags’ Relation

Tags(project_id, tag)
Key: { project_id, tag }

Minimal FD:

{ project_id, tag } → { project_id, tag }

{ project_id, tag } is itself a key because it contains the whole table.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Category’ Relation

Tags(category_name)
Key: category_name

Minimal FD:

category_name → category_name

category_name is itself a key because it is a single attribute in the table.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Sub Catagory’ Relation

sub_category(category_name, subcategory_name)
Key: { category_name, subcategory_name }
FKs: category_name

Minimal FD:

{ category_name, subcategory_name } → { category_name, subcategory_name }

{ category_name, subcategory_name } is itself a key because it contains the whole table.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Freelancer Skill’ Relation

freelancer_skill(skill, freelancer_id)
Key: { skill, freelancer_id }

Minimal FD:

{ skill, freelancer_id } → { skill, freelancer_id }

{ skill, freelancer_id } is itself a key because it contains the whole table.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Bid’ Relation

bid(project_id, freelancer_id, amount, bid_message, bid_status)
Key: { project_id, freelancer_id }
FKs: project_id, freelancer_id

Minimal FD:

{ project_id, freelancer_id } → amount
{ project_id, freelancer_id } → bid_message
{ project_id, freelancer_id } → bid_status

Closure of { project_id, freelancer_id } = {project_id, freelancer_id, amount, bid_message, bid_status}

Hence, { project_id, freelancer_id } is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Address’ Relation

Address(zipcode, city, state, country)
Key: zipcode
FKs: country

Minimal FD:

zipcode → city
zipcode → state
zipcode → country

Closure of zipcode= {zipcode, city, state, country}

Hence, zipcode is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘platform Charges’ Relation

platform_charges(country, Freelancer_Charges, Project_Owner_Charges)
Key: country

Minimal FD:

country → Freelancer_Charges
country → Project_Owner_Charges

Closure of country = {country, Freelancer_Charges, Project_Owner_Charges}

Hence, country is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘Bank Details’ Relation

bank_details(IBAN, BIC, account_no, bank_name)
Key: IBAN

Minimal FD:

IBAN → BIC
IBAN → account_no
IBAN → bank_name

Closure of IBAN = {IBAN, BIC, account_no, bank_name}

Hence, IBAN is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.

‘platform_Feedback’ Relation

platefrom_feedback(feedback_id, rating, time_stamp, message_text)
Key: feedback_id

Minimal FD:

feedback_id → rating
feedback_id → time_stamp
feedback_id → message_text

Closure of feedback_id = {feedback_id, rating, time_stamp, message_text}

Hence, feedback_id is key.

BCNF:
For every minimal FD dependencies listed above is the candidate key, hence the relation is in BCNF.