FUCTIONAL DEPENDENCIES

1) user_details (This table is in 2NF form)

(u_id, u_name, u_gender, u_age, u_address_line , u_state, u_city, u_landmark, u_pincode , u_email)

{u_id} -> u_name

{u_id} -> u_gender

{u_id} -> u_age

{u_id} -> u_address_line

{u_id} -> u_city

{u_id} -> u_state

{u_id} -> u_pincode

{u_id} -> u_email

{u_pincode} -> u_city

{u_pincode} -> u_state

Normalization to 3NF and BCNF:-

u_pincode is not unique, thus it is in 2NF form. So to convert it to BCNF u_id and u_pincode will be together declared as a super key which will uniquely identify user city and user state.

{u_id} -> u_name

{u_id} -> u_gender

{u_id} -> u_age

{u_id} -> u_address_line

{u_id} -> u_city

{u_id} -> u_state

{u_id} -> u_pincode

{u_id} -> u_email

{ u_id ,u_pincode} -> u_city

{ u_id ,u_pincode} -> u_state

PRIMARY KEY:- {u_id}

FOREIGN KEY:- None

PRIME ATTRIBUTE:- u_id, u_pincode

NON–PRIME ATTRIBUTE:- u_name, u_gender, u_age, u_address_line , u_state, u_city, u_landmark, u_email

2) user_symptoms (This table is in 3NF and BCNF form)

(u_id , u_symptoms , u_history , u_allergy)

{u_id} -> u_symptoms

{u_id} -> u_history

{u_id} -> u_allergy

PRIMARY KEY:- None

FOREIGN KEY:- {u_id}

PRIME ATTRIBUTE:- u_id

NON–PRIME ATTRIBUTE: u_symptoms , u_history , u_allergy

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

3) u_phone (This table is in 3NF and BCNF form)

(u_id, phone_no)

{u_id} -> phone_no

PRIMARY KEY:- None

FOREIGN KEY:- {u_id}

PRIME ATTRIBUTE:- u_id

NON–PRIME ATTRIBUTE:- phone_no

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

4) lab_info (This table is in2NF form)

l_id, l_name , l_address_line , l_state, l_city, l_landmark , l_pincode , l_phone , l_timing , l_email , l_cost

{l_id} -> l_name

{l_id} -> l_address_line

{l_id} -> l_state

{l_id} -> l_city

{l_id} -> l_landmark

{l_id} -> l_pincode

{l_id} -> l_phone

{l_id} -> l_timing

{l_id} -> l_email

{l_id} -> l_cost

{l_pincode} -> l_city

{l_pincode} -> l_state

Normalization to 3NF and BCNF:-

l_pincode is not unique, thus it is in 2NF form. So to convert it to BCNF l_id and l_pincode will be together declared as a super key which will uniquely identify lab city and lab state.

{l_id} -> l_name

{l_id} -> l_address_line

{l_id} -> l_state

{l_id} -> l_city

{l_id} -> l_landmark

{l_id} -> l_pincode

{l_id} -> l_phone

{l_id} -> l_timing

{l_id} -> l_email

{l_id} -> l_cost

{ l_id , l_pincode} -> l_city

{ l_id , l_pincode} -> l_state

PRIMARY KEY:- {l_id}

FOREIGN KEY:- None

PRIME ATTRIBUTE:- l_id, l_pincode

NON–PRIME ATTRIBUTE:- l_name , l_address_line , l_state, l_city, l_landmark, l_phone , l_timing , l_email , l_cost

5) lab_details (This table is in 3NF and BCNF form)

(l_id, l_technician , l_doctor , l_receptionist)

{l_id} -> l_technician

{l_id} -> l_doctor

{l_id} -> l_receptionist

PRIMARY KEY:- None

FOREIGN KEY:- {l_id}

PRIME ATTRIBUTE:- l_id

NON–PRIME ATTRIBUTE:- l_technician , l_doctor , l_receptionist

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

6) lab_testing (This table is in 3NF and BCNF form)

(l_id , u_id , l_report , s_time , s_date , pay_status)

{ l_id , u_id } -> l_report

{ l_id , u_id } -> s_time

{ l_id , u_id } -> s_date

{ l_id , u_id } -> pay_status

PRIMARY KEY:- None

FOREIGN KEY:- { l_id , u_id }

PRIME ATTRIBUTE:- l_id , u_id

NON–PRIME ATTRIBUTE:- l_report , s_time , s_date , pay_status

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

7) hos_info (This table is 2NF form)

(h_id, h_name , h_address_line, h_landmark , h_city, h_state, h_pincode , h_phone , h_timing , h_email , consulting_charge , h_type)

{h_id} -> h_name

{h_id} -> h_address_line

{h_id} ->h_landmark

{h_id} -> h_city

{h_id} -> h_state

{h_id} -> h_pincode

{h_id} -> h_phone

{h_id} -> h_timing

{h_id} -> h_email

{h_id} -> consulting_charge

{h_id} -> h_type

{h_pincode} -> h_city

{h_pincode} -> h_state

Normalization to 3NF and BCNF:-

h_pincode is not unique, thus it is in 2NF form. So to convert it to BCNF h_id and h_pincode will be together declared as a super key which will uniquely identify hospital city and hospital state.

{h_id} -> h_name

{h_id} -> h_address_line

{h_id} ->h_landmark

{h_id} -> h_city

{h_id} -> h_state

{h_id} -> h_pincode

{h_id} -> h_phone

{h_id} -> h_timing

{h_id} -> h_email

{h_id} -> consulting_charge

{h_id} -> h_type

{ h_id , h_pincode} -> h_city

{ h_id , h_pincode} -> h_state

PRIMARY KEY:- {h_id}

FOREIGN KEY:- None

PRIME ATTRIBUTE:- h_id, h_pincode

NON–PRIME ATTRIBUTE:- h_name , h_address_line, h_landmark , h_city, h_state, h_phone , h_timing , h_email , consulting_charge , h_type

8) doc_details (This table is in 3NF and BCNF form)

(h_id , doc_id , doc_name , doc_degree , doc_email , doc_phone , doc_address_line ,doc_city , doc_state, doc_landmark , doc_type)

{ h_id , doc_id} -> doc_name

{ h_id , doc_id} -> doc_degree

{ h_id , doc_id} -> doc_email

{ h_id , doc_id} -> doc_phone

{ h_id , doc_id} -> doc_address

{ h_id , doc_id} -> doc_city

{ h_id , doc_id} -> doc_state

{ h_id , doc_id} -> doc_landmark

{ h_id , doc_id} -> doc_type

PRIMARY KEY:- {doc_id}

FOREIGN KEY:- {h_id}

PRIME ATTRIBUTE:- h_id ,doc_id

NON–PRIME ATTRIBUTE:- doc_name , doc_degree , doc_email , doc_phone , doc_address_line ,doc_city , doc_state, doc_landmark , doc_type

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

9) patient_details (This table is in 3NF and BCNF form)

(u_id , pt_status , pt_medication , pt_consultdate , pt_admitdate , pt_dischargedate , pt_lung_infec)

{u_id} -> pt_status

{u_id} -> pt_medication

{u_id} -> pt_consultdate

{u_id} -> pt_admitdate

{u_id} -> pt_dischargedate

{u_id} -> pt_lung_infec

PRIMARY KEY:- None

FOREIGN KEY:- {u_id}

PRIME ATTRIBUTE:- u_id

NON–PRIME ATTRIBUTE:- pt_status , pt_medication , pt_consultdate , pt_admitdate , pt_dischargedate , pt_lung_infec

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

10) staff_details (This table is in 3NF and BCNF form)

(h_id , n_name , med_off_name)

{h_id} -> n_name

{h_id} -> med_off_name

PRIMARY KEY:- None

FOREIGN KEY:- {h_id}

PRIME ATTRIBUTE:- h_id

NON–PRIME ATTRIBUTE:- n_name , med_off_name

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

11) bed_details (This table is in 3NF and BCNF form)

(h_id , gen_count , gen_cost , spec_count , spec_cost, icu_count , icu_cost , vent_count , vent_cost)

{h_id} -> gen_count

{h_id} -> gen_cost

{h_id} -> spec_count

{h_id} -> spec_cost

{h_id} -> icu_count

{h_id} -> icu_cost

{h_id} -> vent_count

{h_id} -> vent_cost

PRIMARY KEY:- None

FOREIGN KEY:- {h_id}

PRIME ATTRIBUTE:- h_id

NON–PRIME ATTRIBUTE:- gen_count , gen_cost , spec_count , spec_cost, icu_count , icu_cost , vent_count , vent_cost

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

12) payment_details (This table is in 3NF and BCNF form)

(u_id, h_id , total_cost , upay_status ,trans_id , trans_date)

{trans_id} -> u_id

{trans_id} -> h_id

{trans_id} -> total_cost

{trans_id} -> upay_status

{trans_id} -> trans_date

PRIMARY KEY:- {trans_id}

FOREIGN KEY:- {u_id,h_id}

PRIME ATTRIBUTE:- trans_id

NON–PRIME ATTRIBUTE:- total_cost , upay_status , trans_date, h_id , u_id

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.

13) imaging_centre (This table is in 3NF and BCNF form)

(h_id , xray_avail , ctscan_avail , xray_cost , ctscan_cost)

{h_id} -> xray_avail

{h_id} -> ctscan_avail

{h_id} -> xray_cost

{h_id} -> ctscan_cost

PRIMARY KEY:- None

FOREIGN KEY:- {h_id}

PRIME ATTRIBUTE:- h_id

NON–PRIME ATTRIBUTE:- xray_avail , ctscan_avail , xray_cost , ctscan_cost

Reason:-

A relation is in third normal form and BCNF, as there is no transitive dependency for non-prime attributes as well as it is in second normal form.