schema

Users(**user_id**, username, password,email,cellphone,address,birthday)

Folders(**folder_ID**, folderName, user_id)

Contacts(**user_id**, username, password, email, cellphone, address, birthday) ---(same table as Users)

Connects(**user_id**, contact_id)

EmailFolderMapping(**email_id**, folder_id)

Emails(**email_id**, title, sender_id, created_time, sent_time, content, receiver_email_id)

Records(**email_id**, attachment_ID)

Attachments(**attachment_ID**attachment_pathattachment_file)

(Users, Folders, Contacts, Connects, EmailFolderMapping, Emails, Records, Attachments)

Users --> Connects

Contacts --> Connects

Users --> Folders

EmailFolderMapping --> Folders

Emails --> EmailFolderMapping

Emails --> Records

Records --> Attachments

First we identify all candidate keys based on the given functional dependencies. Then, using these candidate keys and functional dependencies, we need to ensure that every non-prime attribute is fully, functionally dependent on every candidate key and that this dependency is non-trivial.

From these dependencies, we can infer the following candidate keys:

- Users
- Contacts
- Emails
- Records

Now, let's decompose:

R1 (Users, Connects)

Users --> Connects

R2 (Contacts, Connects)

Contacts --> Connects

R3 (Users, Folders)

Users --> Folders

R4 (EmailFolderMapping, Folders)

EmailFolderMapping --> Folders

R5 (Emails, EmailFolderMapping)

Emails --> EmailFolderMapping

R6 (Emails, Records)

Emails --> Records

R7 (Records, Attachments)

Records --> Attachments

Each decomposed relation adheres to BCNF, as for each relation, the attribute (or set of attributes) on the left is a candidate key for that relation, and this functional dependency is non-trivial. Therefore, the schema in in at least BCNF.