**DATABASES**

October 2023 -- February 2024

**SCHOOL OF INFOCOMM TECHNOLOGY**

Diploma in Information Technology

Diploma in Data Science

**Databases Assignment**

**(40% of DB Module)**

**Checkpoint Submission (15% of the Assignment)**

**Deadlines: 3 Dec 2023, 23:59 pm (Softcopy - BrightSpace)**

**From 4 Dec 2023, 09:00 am (Hardcopy) to your tutor**

|  |  |  |  |
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# **Introduction:**

Database with specialised account types for myCondoApp, which are Staff, Property Management Companies, Owners, Tenants and Condo Managers, reflecting their differing roles. Owners and tenants are able to book facilities, provide feedback, apply for vehicle labels for parking, while managers can post announcements. Useful contacts for condo developments are provided.

# **Write Up:**

**Bold** -Primary Key

Underline - Foreign Key

**Accounts:**

Owner, Tenants, Property Management Companies and Condo Staff are connected disjointly to BaseAcc entity, as all accounts require information such as Password, Name, EmailAddr, Addr, ContactNo, CondoID. Some Condo Owners can be Condo Managers\*, but not all of them are.

After approval by CondoStaff, AccAppvID, **AccID** and Account Type are assigned. Utilising CondoID, foreign key to entity CondoDevelopment(CondoID) and AccAppvID, foreign key to MyCondoStaff(StaffID) for account approval.

StaffAcc approves many tenant/owner accounts and approves many PMC accounts. StaffAcc possesses a unique identifier **StaffID**, with a foreign key to entity BaseAcc(AccID).

PMC verifies information of multiple tenant/owner accounts.

PMCAcc requires additional information such as Business Registration No, Company Name, Company Contact Name, Company Contact No, **AccID** as Primary Key and foreign key to Base Account.

OwnerAcc has additional information about Date of Ownership and foreign key to Base Account(**AccID**).

TenantAcc has additional attributes Tenancy Date Start and Tenancy Date End and foreign key to BaseAccount(**AccID**).

CondoManagers are a subset of CondoOwners, whomst multiple CondoManagers can manage a singular CondoDevelopment.

**FeedBack:**

Tenants and Owners can provide Feedback with relevant information such as Feedback Category, Title, Content, Status and Date, with a unique identifier assigned to it, **FeedbackID**. AccID is associated as a foreign key to identify the author. Additionally, it is attended by CondoManagers which is denoted by, AttdByCM.

**Useful Contacts:**

CondoDevelopment has multiple useful contacts, denoted by **Business Name** and **Business Address** with additional information such as Service Type, Operating Hours, Email Address, Contact No. available, tied to CondoDevelopment by CondoID.

**Facilities:**

A condo development has multiple facilities, which contain information in the database such as **FacilityID**, Facility Name, Facility Type, Facility Status, Facility No and Rental Rate. A facility can accommodate multiple Bookings.

**Booking:**

An owner or tenant can make multiple Bookings, denoted by unique **BkID**, Booking Status, Booking Time, Payment Status and Payment Time. A Booking has additional information such as AccID to denote who made the booking, FacilityID to denote which Facility has been booked and SlotID to pinpoint which TimeSlot has been booked.

**Timeslot:**

Various bookings are made by selecting a multitude of timeslots, each a fixed 5hr 30 min Time Slot with a unique **SlotID** associated with it. Additional information such as Time Slot Start and End is provided, with duration being derived. BookingID is used to identify which booking the timeslot belongs to.

**Announcement:**

Numerous announcements can be drafted by a CondoStaff, which contains key information such as announcement priority, title, content, date posted, start and end display time. It is identified by **AnnounceID**.Announcements have to be approved and posted by a CondoManager before going live, by AppvByCM.

**Label Application:**

Tenants and owners can create Label Applications for their vehicles, which contain information such as Application Type for Temporary/Resident, Ownership Information, Vehicle No, Vehicle Make, Vehicle Model, Approval Status as well as IU Number. In addition, it is denoted by a unique identifier **AppID**. These Label Applications are approved by CondoStaff, denoted by LabelAppvID.

**Vehicle Label:**

Once a label application is approved, the tenant/owner has successfully applied for a Vehicle Label. This pertains to information such as Vehicle Number, DOI, Expiry Date and Parking Lot ID. It is uniquely identified by its **LabelID** and is denoted by AccID to identify who is the recipient for Vehicle Label, if approved.

**Parking Lots:**

Each individual vehicle label is associated with a Parking Lot, denoted by its **Parking Lot ID**, with foreign key CondoID to further identify it. It includes information such as Parking Lot Type, Availability and Monthly Charge.

# **Assumptions:**

* Assume that all inputs into the MyCondoApp are true and not falsified (such as legitimate vehicle numbers, legitimate VU numbers).
* Assume that individuals provide only one name that is a composite (consisting of first and last name).
* Assume that owner and tenants do not overlap, such that each entity is an unique individual (i.e an owner cannot be a tenant and vice versa).
* Assume that individuals only utilise one account, therefore assigned only one MyCondoApp account (possibly linked to NRIC or Singpass).
* Assume that each account can only be associated with one condo development, regardless of account type.

## **Condo Staff:**

* Assume that MyCondoStaff (StaffAcc) for a particular condominium development is a dedicated subsidiary of the Condominium Development’s Staff that is trained to use the myCondoApp and have their individualised “StaffAcc”.
* Assume that all CondoStaff are not tenants or owners of the condominium developments
* Assume that staff accounts are automatically verified and created, not requiring any external approval, possibly through administrator status.

## **Condo Management:**

* Assume that every CondoDevelopment (CondoDev) has at least 1 Condo Manager (CondoMng)
* Assume that not all Condo Owners will be a part of condominium management (i.e there is not total participation of Condo Owners to be Condo Managers)
* Assume that Condo Management (CondoMng) can only manage one Condo Development (CondoDev)
* Assume that Condo Management (CondoMng) has to vet and verify all announcements to be made by CondoStaff(StaffAcc)

## **Account Verification:**

* Assume when account(owner and tenant) is verified by CondoStaff, the vetting process done by PMC for owner and tenant has already been completed.

## **Facility Booking:**

* Assume that the deposit required for facility booking is a fixed amount or a percentage of the total booking cost.
* Assume that the system handles the refund process for cancelled bookings and that it follows a predefined refund policy
* Assume that the rental rates for facilities regardless of their type are fixed.
* Assume that all time slots are equivalent (all 5h 30 min blocks)
* Assume that condo facilities are dedicated to owners and tenants only and the booking function is disabled for management and staff
* Assume that there is no overlap for FacilityID and that each Facility has its own Unique ID

## **Parking Labels:**

* Assume that the approval for additional parking labels is subject to the availability of parking lots
* Assume that the system handles the allocation of unique numbers for each issued parking label
* Assume that each parking lot in the carpark are allocated unique numbers for each individual carpark
* Assume that the monthly charge for more than 1 label of cars is fixed, at a fixed rate, regardless of the amount of additional cars.
* Assume that monthly charge is due payment regardless if parking lot is actually being utilised

## **Vehicle Label Application:**

* Assume that the system validates the uniqueness of the vehicle number and IU number during the application process.
* Assume that the condo management team reviews and approves applications on a predefined set of criterias

## **Feedback Handling:**

* Assume that the MyCondoApp system allows the management team to categorise feedback by its respective categories
* Assume that feedback responses are tracked in the system
* Assume that all feedback is attended to by Condo Management, if not the entry will remain NULL, awaiting attendance.

## **Announcements:**

* Assume that only users part of condominium management are allowed to post announcements
* Assume that condominium management are allowed to schedule announcements for future dates
* Assume that announcements have a defined lifecycle and are automatically removed from notice board after expiration.

## **Useful Contacts:**

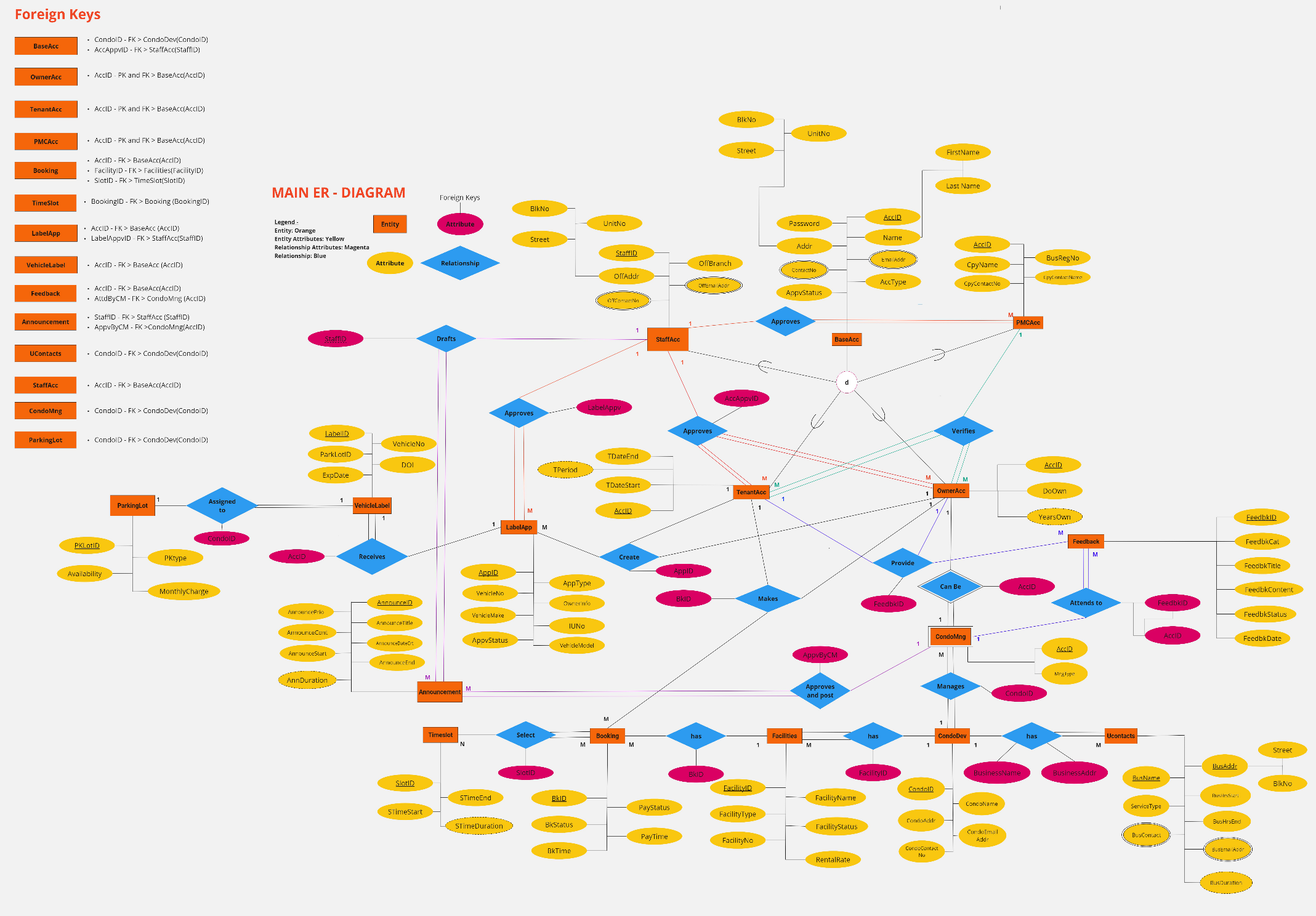
* Assume that the system has updated and maintains the list of useful contacts to be up-to-date
* Assume that each CondoDev has a minimum of 1 useful contact available, such as the Fire Department, the local Police Neighbourhood Centre.
* Assume that there is no overlap for Useful Contact Numbers, as each Condo Development is in a unique location (such as Jurong Estate, Bedok Estate, etc.)

## **Data Validation:**

* Assume that the system performs validations on user-inputted data to ensure accuracy and consistency
* Assume that there are data integrity is enforced with its constraints enacted, such as foreign key constraints

# **ER Diagram:**

Refer to next page



# **Data Tables:**

## **BaseAcc Entity:**

|  |  |
| --- | --- |
| **Description** | Stores the details of accounts that are universal for all account types |
| **Attribute Name** | **Description of Attribute** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp |
| CondoID | **Unique condominium development identifier** to an individual Condominium Development |
| Password | **Unique password** for security verification |
| Name | **Name** of the individual |
| Addr | **Address** of the individual |
| EmailAddr | **Email Address** of individual |
| ContactNo | **Contact Number** of Individual |
| AppvStatus | Approval Status of the Account (by the respective party; MyCondoStaff approves PMCAcc, OwnerAcc and TenantAcc) (Pending/Approved/Rejected) |
| AccType | Identifies the type of account that user is registered as (Owner,Tenant, Staff, PMC, CondoMng) |
| AccAppvID | **Unique Condo Staff Identifier** to a specific Condo Staff Employee that has approved account creation of a Owner/Tenant/  PMC Account |

## **OwnerAcc Entity:**

|  |  |
| --- | --- |
| **Description** | Stores details pertaining specifically to owner-type accounts |
| **Attribute Name** | **Description of Attribute** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp |
| DoOwn | **Date of Ownership** whereby an individual has obtained the property rights to a particular Condo Development |

## **CondoMng Entity:**

|  |  |
| --- | --- |
| **Description** | Stores details of management accounts |
| **Attribute Name** | **Description of Attribute** |
| CondoID | Unique identifier to an individual condo |
| MngType | Category Type of Manager (Project,Financial , Communication ,Conflict and Operation ) |

**TenantAcc Entity:**

|  |  |
| --- | --- |
| **Description** | Stores details pertaining to tenant type accounts |
| **Attribute Name** | **Description of Attribute** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp |
| TDateStart | **Start date** of lease for tenancy for a particular tenant |
| TDateEnd | **Date of End** of lease for tenancy for a particular tenant |

## **PMCAcc Entity:**

|  |  |
| --- | --- |
| **Description** | Stores details pertaining to PMC type accounts |
| **Attribute Name** | **Description of Attribute** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp |
| BusRegNo | **Business Registration Number** |
| CpyName | **Name** of the Property Management Company |
| CpyContactName | **Name** of Contact Person |
| CpyContactNo | **Contact number** of Contact person |

## **StaffAcc Entity:**

|  |  |
| --- | --- |
| **Description** | Stores details pertaining to staff information |
| **Attribute Name** | **Description of Attribute** |
| StaffID | **Unique Condo Staff Identifie**r to a specific Condo Staff Employee |
| AccID | **Unique Account identifier** to an individual account on myCondoApp |
| OffBranch | **Office Branch** of the Condo Staff |
| OffAddress | **Physical Office Address** of the staff |
| OffEmailAddr | **Official Email Address** of the staff (strictly staff provided email) |
| OffContactNo | **Contact Number** for the office of staff |

## **CondoDev Entity:**

|  |  |
| --- | --- |
| **Description** | Stores the information pertaining to the condominium |
| **Attribute Name** | **Description of Attribute** |
| CondoID | **Unique Condominium Development Identifier** to a Condominium Development |
| CondoName | **Name** of Condominium Development |
| CondoAddr | **Address** of Condominium Development |
| CondoEmailAddr | **Email Address** of Condominium Development |
| CondoContactNo | Contact Number of Condominium Development |

## **Facilities Entity:**

|  |  |
| --- | --- |
| **Description** | Store Facility Information |
| **Attribute Name** | **Description of Attribute** |
| FacilityID | **Unique Facility identifier** for each facility |
| FacilityType | Type of facility (BQ, MPC, FR, SQ, TT) |
| FacilityNo | **Sequential Number Allocation** for the individual facilities of the same Facility Type |
| FacilityName | **Name** of Facility (bbq, function room, multi purpose court(table tennis), squash, table tennis |
| FacilityStatus | **Status of Availability** for Facility |
| RentalRate | **Rental Rate** for Booking of Facilities, denoted by $/hr |

**Booking Entity:**

|  |  |
| --- | --- |
| **Description** | Store details pertaining to booking |
| **Attribute Name** | **Description of Attribute** |
| BkID | **Unique Booking Identifier** for the booking |
| AccID | **Unique Account identifier** to an individual account on myCondoApp (Owner/Tenant) that has made a booking |
| FacilityID | **Unique Facility identifie**r for the facility that has been booked |
| SlotID | **Unique Booking TimeSlot** Identifier for time slot |
| BkStatus | **Status** to indicate whether approval is pending/confirmed/cancelled |
| BkTime | **Date & Time** booking was input on app |
| PayStatus | **Status** to indicate whether payment has been made (Confirmed/Pending/Awaiting) |
| PayTime | **Date & Time** of payment made for the Booking |

## **TimeSlot Entity:**

|  |  |
| --- | --- |
| **Description** | Store Booking Information such as date start, date end |
| **Attribute Name** | **Description of Attribute** |
| SlotID | **Unique Booking TimeSlot Identifier** for Time Slot for Booking |
| BkID | **Unique Booking Identifier** for the booking created |
| STimeStart | **Date & Time for Start** of booking for a particular timeslot |
| STimeEnd | **Date & Time for end** of booking for a particular time slot |

**LabelApp Entity:**

|  |  |
| --- | --- |
| **Description** | Store Label Applicant Information |
| **Attribute Name** | **Description of Attribute** |
| AppID | **Unique Account identifier** to an individual account on myCondoApp creating a vehicle label application |
| AppType | **Type** of application (Temporary or Permanent) |
| AccID | **Unique account identifier** for the user that booked |
| OwnerInfo | **Ownership information** for type of ownership of vehicle (own,rented,company,others) |
| VehicleNo | Unique **Vehicle Number** |
| IUNo | Unique **In-vehicle Number** |
| VehicleMake | **Brand** of the vehicle |
| VehicleModel | **Model** of the vehicle |
| AppvStatus | **Status of Application** Approval (Approved,Pending,Rejected) |
| LabelAppvID | **Unique CondoStaff identifier** to denote certain Condo Staff (StaffAcc Holder) has approved label |

## **VehicleLabel Entity:**

|  |  |
| --- | --- |
| **Description** | Information on the label |
| **Attribute Name** | **Description of Attribute** |
| LabelID | **Unique vehicle label identifier** for the label |
| AccID | **Unique Account identifier** to an individual account on myCondoApp that has applied for the vehicle label |
| VehicleNo | Unique **Vehicle Number** |
| ParkLotID | **Unique ‘parking lot space’ identifier** for the vehicle label |
| DOI | **Date of Issue** for the particular vehicle label |
| ExpDate | **Date of Expiry** for the particular vehicle label |

## **ParkingLot Entity:**

|  |  |
| --- | --- |
| **Description** | Information about parking lot |
| **Attribute Name** | **Description of Attribute** |
| PKLotID | **Unique identifier** to an individual parking lot |
| CondoID | **Unique identifier** to an individual condo |
| PKtype | **Parking Lot** **Type** (Temp/Permanent) |
| Availability | **Availability** (Available/Unavailable) |
| MonthlyCharge | **MonthlyCharge** (Null possible for temp) |

## **Feedback Entity:**

|  |  |
| --- | --- |
| **Description** | Information on feedback provided by the residents |
| **Attribute Name** | **Description of Attribute** |
| FeedbkID | **Unique Feedback Ticket Identifier** for each individual ticket of feedback |
| AccID | **Unique Account identifier** to an individual account on myCondoApp that has provided feedback |
| FeedbkCat | **Category** for feedback (security, cleanliness, plumbing, facilities, etc) |
| FeedbkTitle | **Title** for Feedback Ticket |
| FeedbkContent | **Content** for Feedback Ticket |
| FeedbkStatus | **Status** of Feedback Ticket; whether it has been attended by the condo management team (Pending/Completed) |
| FeedbkDate | **Date** when Feedback Ticket was created |
| AttdByCM | **Unique Account Identifier** that is attributed to the Condo Manager (CondoMng) that has verified and acknowledged the feedback |

## **Announcement Entity:**

|  |  |
| --- | --- |
| **Description** | Information on announcement details |
| **Attribute Name** | **Description of Attribute** |
| AnnounceID | **Unique Announcement identifier** for an announcement |
| StaffID | **Unique Condo Staff Identifier** to a specific Condo Staff Employee that has drafted the announcement, awaiting approval by Condo Managers |
| AnnouncePrio | **Priority** for the announcement(Important, neutral, low priority) |
| AnnounceTitle | **Title** for announcement |
| AnnounceCont | **Content** for announcement |
| AnnounceDateCrt | **Date** where draft of announcement has been made |
| AnnounceStart | Date where announcement **starts** to be live |
| AnnounceEnd | Date where announcement **ceases** to be live |
| AppvByCM | **Unique Account Identifier** for Condo Manager (CondoMng) that approves and posts announcement |

## **UContacts Entity:**

|  |  |
| --- | --- |
| **Description** | Store useful contacts details |
| **Attribute Name** | **Description of Attribute** |
| CondoID | **Unique Condominium Development Identifier** to a Condominium Development |
| BusName | **Name** of the business |
| ServiceType | **Service type or Goods** offered by the business |
| BusAddr | **Address** of Business |
| BusContact | **Contact Number** of Business |
| BusHrsStart | **Starting** Time for Operating Hours |
| BusHrsEnd | **Ending** Time for Operating Hours |
| BusEmailAddr | **Email address** of business |

# **Queries:**

## **Edric:**

Retrieve upcoming facility bookings for a specific facility type (Swimming Pools):

**SELECT**

**c.FacilityID,**

**c.FacilityName,**

**c.FacilityNumber,**

**(SELECT COUNT(\*)**

**FROM Booking d**

**WHERE d.FacilityID = c.FacilityID**

**AND d.SlotID IS NOT NULL)**

**AS “NumOfBookings”**

**FROM FacilityInfo c**

**INNER JOIN Booking a ON c.FacilityID = a.FacilityID**

**INNER JOIN TimeSlot b ON a.SlotID = b.SlotID**

**WHERE c.FacilityType = 'SP'**

**AND b.STimeStart > CURRENT\_TIMESTAMP;**

Retrieve Name, Contact Number and number of vehicles for owners/tenants with more than one registered vehicle:

**SELECT**

**a.Name,**

**a.ContactNo,**

**(SELECT COUNT(\*)**

**FROM VehicleLabel b**

**WHERE b.AccID = a.AccID)**

**AS “NumOfVehicles”**

**FROM BaseAcc a**

**WHERE (SELECT COUNT(\*)**

**FROM VehicleLabel b**

**WHERE b.AccID = a.AccID) > 1;**

Retrieve condo owners information (Name, Contact No and CondoID) who have feedback that is overdue for attention for specific development:

**SELECT**

**a.Name,**

**a.ContactNo**

**a.CondoID**

**FROM BaseAcc a**

**WHERE a.AccID IN (**

**SELECT AccID**

**FROM Feedback**

**WHERE FeedbkCat = 'Plumbing' AND FeedbkStatus = 'Pending'**

**AND TIMESTAMPDIFF(HOUR, FeedbkTime, CURRENT\_TIMESTAMP) > 24**

**);**

## **Jason:**

Retrieve total number of Business in grouping them by service type in useful contacts at a specific Condo Development:

**SELECT** **SUM(uc.BusName) AS ‘Number of Businesses’**

**FROM UContacts uc INNER JOIN CondoDev cd**

**ON uc.CondoID = cd.CondoID**  
**GROUP BY uc.Service Type**

**WHERE cd.CondoAddr = ‘Jurong’;**

Retrieve Owner accounts which ownership is more than 5 years and number of tenants in that Condo Development of that Owner:

**SELECT**

**ba.AccID AS ‘Owner of Condo’,**

**COUNT (ba.AccID) AS ‘Number of Tenants’**

**FROM BaseAcc ba**

**INNER JOIN OwnerAcc oa ON ba.AccID = oa.AccID**

**WHERE DATEDIFF (CURDATE (), oa.DoOwn) > 1825**

**GROUP BY ba.CondoName**

List account id, the number of bookings and labels made by them:

**SELECT**

**ba.AccID ,**

**COUNT(b.BookingID) AS ‘Number of Bookings’,**

**COUNT (vl.LabelID) AS ‘Number of Labels’**

**FROM BaseAcc ba**

**INNER JOIN Booking b ON ba.AccID = b.AccID**

**INNER JOIN VehicleLabel ON ba.AccID = vl.AccID**

**GROUP BY ba.AccID**

## **Dingxuan:**

Retrieve announcements under a particular category and whom posted and approved it.:

**SELECT**

**a.AnnounceTitle,**

**a.AnnounceContent,**

**b.MngType,**

**d.Name**

**FROM Announcement a**

**INNER JOIN CondoMng b ON b.AccID = a.AccID**

**INNER JOIN MyCondoStaff c ON c.AccID = a.StaffID**

**INNER JOIN BaseAcc d ON d.AccID=c.AccID**

Retrieve the parking lots assigned to a vehicle as well as the vehicle No as well as the account name and id:

**SELECT**

**a.vehicleNo,**

**b.PKLotID,**

**b.PKType,**

**b.CondoID,**

**c.AccID,**

**c.Name**

**FROM VehicleLabel a**

**INNER JOIN ParkingLot b ON b.PKLotID = a.PKLotID**

**INNER JOIN BaseAcc c ON c.AccID = a.AccID**

Retrieve Facilities with the Highest Number of Bookings in the **Last Month:**

**SELECT**

**b.FacilityID,**

**b.FacilityName,**

**COUNT(a.BookingID) as NumOfBookings**

**FROM Booking a**

**INNER JOIN FacilityInfo b ON a.FacilityID = b.FacilityID**

**INNER JOIN Timeslot c ON a.SlotID = c.SlotID**

**WHERE b.BookingTime >= CURRENT\_TIMESTAMP - INTERVAL 1 MONTH**

**GROUP BY b.FacilityID, b.FacilityName**

**ORDER BY NumOfBookings DESC**

**LIMIT 1;**

## **Garrett:**

Retrieve the AccID, Name and Date of Ownership of owners and group by condominium development:

**SELECT ba.AccID, ba.Name, oa.DoOwn**

**FROM BaseAcc ba**

**INNER JOIN OwnerAcc oa ON ba.AccID = oa.AccID**

**INNER JOIN CondoDev cd ON ba.CondoID = cd.CondoID**

**WHERE ba.AccType = 'Owner'**

**GROUP BY ba.CondoID, ba.AccID, ba.Name, oa.DoOwn;**

Retrieve the count and names of owners who have requested for temporary vehicle labels grouped by condominium development name:

**SELECT cd.CondoID, cd.CondoName,**

**COUNT(DISTINCT oa.AccID) AS “Number of Owners”,**

**GROUP\_CONCAT(DISTINCT ba.Name ORDER BY ba.Name ASC)**

**AS “Owner Names”**

**FROM CondoDev cd**

**INNER JOIN BaseAcc ba ON cd.CondoID = ba.CondoID**

**INNER JOIN OwnerAcc oa ON ba.AccID = oa.AccID**

**INNER JOIN LabelApp la ON ba.AccID = la.AccID**

**WHERE la.AppType = 'Temporary'**

**GROUP BY cd.CondoID, cd.CondoName;**

Calculate average tenancy duration by condominium development:

**SELECT cd.CondoID, cd.CondoName,**

**AVG(DATEDIFF(day, ta.TDateStart, ta.TDateEnd))**

**AS “Average Tenancy Duration (Days)”**

**FROM CondoDev cd**

**INNER JOIN BaseAcc ba ON cd.CondoID = ba.CondoID**

**INNER JOIN TenantAcc ta ON ba.AccID = ta.AccID**

**GROUP BY cd.CondoID, cd.CondoName;**

# **Conclusion:**

In conclusion, the condominium database design excels in efficiently managing diverse aspects within the community. With distinct account types like Condo Management Accounts, StaffAcc, PMCAcc, OwnerAcc, TenantAcc, and CondoManagers, the system accurately reflects the varied roles. Foreign key relationships ensure referential integrity, and entities such as Feedback, Useful Contacts, Facilities, Booking, and Announcements streamline essential processes. The data captures the relationships and attributes required for managing accounts, facilities, bookings, announcements, label applications, vehicle labels, parking lots, feedback, and useful contacts within a condominium environment.

# **Appendix A:**

## **Data Dictionaries**

**BaseAcc:** Stores the details of accounts that are universal for all account types

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp | char(10) | Primary Key | No |
| CondoID | **Unique condominium development identifier** to an individual Condominium Development | char(10) | Foreign Key -> CondoDev(CondoID) | No |
| Password | **Unique password** for security verification | varchar(50) |  | No |
| Name | **Name** of the individual | varchar(50) |  | No |
| Addr | **Address** of the individual | varchar(50) |  | No |
| EmailAddr | **Email Address** of individual | varchar(50) |  | No |
| ContactNo | **Contact Number** of Individual | char(10) |  | No |
| AppvStatus | Approval Status of the Account (by the respective party; MyCondoStaff approves PMCAcc, OwnerAcc and TenantAcc) (Pending/Approved/Rejected) | varchar(10) |  | No |
| AccType | Identifies the type of account that user is registered as(Owner,Tenant, Staff, PMC, CondoMng) | char(10) |  | No |
| AccAppvID | **Unique Condo Staff Identifier** to a specific Condo Staff Employee that has approved account creation of a Owner/Tenant/  PMC Account | char(10) | Foreign Key -> StaffAcc(StaffID) | No |

Base Account => Disjoint -> Owner/Tenant/Whatever

**OwnerAcc:** Stores details pertaining specifically to owner-type accounts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp | char(10) | Primary Key  Foreign Key -> BaseAcc(AccID) | No |
| DoOwn | **Date of Ownership** whereby an individual has obtained the property rights to a particular Condo Development | smalldatetime | DoOwn not later than today | No |

**TenantAcc:** Stores details pertaining specifically to Tenant-Type accounts.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp | char(10) | Primary Key  Foreign Key -> Base Account (AccID) | No |
| TDateStart | **Start date** of lease for tenancy for a particular tenant | smalldatetime | TDateStart not later than today | No |
| TDateEnd | **Date of End** of lease for tenancy for a particular tenant | smalldatetime | TDateEnd must be later than TDateStart | No |

**PMCAcc:** Stores details pertaining to PMC type accounts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| AccID | **Unique Account identifier** to an individual account on myCondoApp | char(10) | Primary Key  Foreign Key --> BaseAcc(AccID) | No |
| BusRegNo | **Business Registration Number** | char(10) |  | No |
| CpyName | **Name** of the Property Management Company | varchar(50) |  | No |
| CpyContactName | **Name** of Contact Person | varchar(0) |  | No |
| CpyContactNo | **Contact number** of Contact person | char(10) |  | No |

**CondoDev:** Stores the information pertaining to the condominium

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| CondoID | **Unique Condominium Development Identifier** to a Condominium Development | char(10) | Primary Key | No |
| CondoName | **Name** of Condominium Development | varchar(50) |  | No |
| CondoAddr | **Address** of Condominium Development | varchar(150) |  | No |
| CondoEmailAddr | **Email Address** of Condominium Development | varchar(50) |  | No |
| CondoContactNo | Contact Number of Condominium Development | char(10) |  | No |

**Facilities:** Store Facility Information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| FacilityID | **Unique Facility identifier** for each facility | char(10) | Primary Key | No |
| FacilityType | Type of facility (BQ, MPC, FR, SQ, TT) | char(2) |  | No |
| FacilityNo | **Sequential Number Allocation** for the individual facilities of the same Facility Type | tinyint |  | No |
| FacilityName | **Name** of Facility (bbq, function room, multi purpose court(table tennis), squash, table tennis | varchar(20) |  | No |
| FacilityStatus | **Status of Availability** for Facility | bool |  | No |
| RentalRate | **Rental Rate** for Booking of Facilities, denoted by $/hr | smallmoney |  | No |

**Booking:** Store booking details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| BkID | **Unique Booking Identifier** for the booking | char(10) | Primary Key | No |
| AccID | **Unique Account identifier** to an individual account on myCondoApp (Owner/Tenant) that has made a booking | char(10) | Foreign Key –> BaseAcc(AccID) | No |
| FacilityID | **Unique Facility identifie**r for the facility that has been booked | char (10) | Foreign Key –> Facilities(FacilityID) | No |
| SlotID | **Unique Booking TimeSlot** Identifier for time slot | char (10) | Foreign Key –> TimeSlot(SlotID) | No |
| BkStatus | **Status** to indicate whether approval is pending/confirmed/cancelled | varchar(15) |  | No |
| BkTime | **Date & Time** booking was input on app | smalldatetime |  | No |
| PayStatus | **Status** to indicate whether payment has been made (Confirmed/Pending/Awaiting) | Varchar(15) | BkStatus has to be ‘Confirmed’ | Yes |
| PayTime | **Date & Time** of payment made for the Booking | smalldatetime | Difference between PayTime and BkTime cannot exceed more than 1h | No |

**TimeSlot:** Store Booking Information such as date start, date end

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| SlotID | **Unique Booking TimeSlot Identifier** for Time Slot for Booking | char(10) | Primary Key | No |
| BkID | **Unique Booking Identifier** for the booking created | char(10) | Foreign Key –> Booking (BookingID) | No |
| STimeStart | **Date & Time for Start** of booking for a particular timeslot | smalldatetime | BkTimeStart must be 24 hours ahead of BkTime(Booking) | No |
| STimeEnd | **Date & Time for end** of booking for a particular time slot | smalldatetime | BkTimeEnd must be later than BkTimeStart | No |

**LabelApp:** Store Label Applicant Information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| AppID | **Unique Account identifier** to an individual account on myCondoApp creating a vehicle label application | char(15) | Primary Key | No |
| AppType | **Type** of application (Temporary or Permanent) | varchar(10) |  | No |
| AccID | **Unique account identifier** for the user that booked | char(10) | Foreign Key –> BaseAcc (AccID) | No |
| OwnerInfo | **Ownership information** for type of ownership of vehicle (own,rented,company,others) | varchar(10) |  | No |
| VehicleNo | Unique **Vehicle Number** | char(8) |  | No |
| IUNo | Unique **In-vehicle Number** | char(10) |  | No |
| VehicleMake | **Brand** of the vehicle | varchar(50) |  | No |
| VehicleModel | **Model** of the vehicle | varchar(50) |  | No |
| AppvStatus | **Status of Application** Approval (Approved,Pending,Rejected) | varchar(20) |  | No |
| LabelAppvID | **Unique CondoStaff identifier** to denote certain Condo Staff (StaffAcc Holder) has approved label | char(10) | Foreign Key -> StaffAcc(StaffID) | No |

**VehicleLabel:** Information on the label

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| LabelID | **Unique vehicle label identifier** for the label | char(10) | Primary Key | No |
| AccID | **Unique Account identifier** to an individual account on myCondoApp that has applied for the vehicle label | char(10) | Foreign Key –> BaseAcc (AccID) | No |
| VehicleNo | Unique **Vehicle Number** | char(8) |  | No |
| ParkLotID | **Unique ‘parking lot space’ identifier** for the vehicle label | varchar(20) |  | No |
| DOI | **Date of Issue** for the particular vehicle label | smalldatetime |  | No |
| ExpDate | **Date of Expiry** for the particular vehicle label | smalldatetime | ExpDate must be later than DOI | No |

**Feedback:** Information on feedback provided by the residents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| FeedbkID | **Unique Feedback Ticket Identifier** for each individual ticket of feedback | char(10) | Primary Key | No |
| AccID | **Unique Account identifier** to an individual account on myCondoApp that has provided feedback | char(10) | Foreign Key –> BaseAcc(AccID) | No |
| FeedbkCat | **Category** for feedback (security, cleanliness, plumbing, facilities, etc) | varchar(25) |  | No |
| FeedbkTitle | **Title** for Feedback Ticket | varchar(50) |  | No |
| FeedbkContent | **Content** for Feedback Ticket | varchar(2000) |  | No |
| FeedbkStatus | **Status** of Feedback Ticket; whether it has been attended by the condo management team (Pending/Completed) | varchar(20) |  | No |
| FeedbkDate | **Date** when Feedback Ticket was created | smalldatetime |  | No |
| AttdByCM | **Unique Account Identifier** that is attributed to the Condo Manager (CondoMng) that has verified and acknowledged the feedback | char(10) | ForeignKey -> CondoMng (AccID) |  |

**Announcement:** Information on announcement details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| AnnounceID | **Unique Announcement identifier** for an announcement | char(10) | Primary Key | No |
| StaffID | **Unique Condo Staff Identifier** to a specific Condo Staff Employee that has drafted the announcement, awaiting approval by Condo Managers | char(10) | Foreign Key -> StaffAcc (StaffID) | No |
| AnnouncePrio | **Priority** for the announcement(Important, neutral, low priority) | varchar(20) |  | No |
| AnnounceTitle | **Title** for announcement | varchar(1000) |  | No |
| AnnounceCont | **Content** for announcement | varchar(1000) |  | No |
| AnnounceDateCrt | **Date** where draft of announcement has been made | smalldatetime |  | No |
| AnnounceStart | Date where announcement **starts** to be live | smalldatetime |  | No |
| AnnounceEnd | Date where announcement **ceases** to be live | smalldatetime |  | No |
| AppvByCM | **Unique Account Identifier** for Condo Manager (CondoMng) that approves and posts announcement | char(10) | Foreign Key ->  CondoMng(AccID) | No |

**UContacts:** Store useful contacts details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| CondoID | **Unique Condominium Development Identifier** to a Condominium Development | char(10) | Foreign Key -> CondoDev (CondoID) | No |
| BusName | **Name** of the business | varchar(20) | Primary Key | No |
| ServiceType | **Service type or Goods** offered by the business | varchar(20) |  | No |
| BusAddr | **Address** of Business | varchar(20) | Primary Key (Composite) | No |
| BusContact | **Contact Number** of Business | char(10) |  | Yes |
| BusHrsStart | **Starting** Time for Operating Hours | time |  | No |
| BusHrsEnd | **Ending** Time for Operating Hours | time |  | No |
| BusEmailAddr | **Email address** of business | varchar(50) |  | No |

**StaffAcc:** Store Staff information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| StaffID | **Unique Condo Staff Identifie**r to a specific Condo Staff Employee | char(10) | Primary Key | No |
| AccID | **Unique Account identifier** to an individual account on myCondoApp | char(10) | Foreign Key –> BaseAcc (AccID) | No |
| OffBranch | **Office Branch** of the Condo Staff | varchar(30) |  | No |
| OffAddress | **Physical Office Address** of the staff | varchar(50) |  | No |
| OffEmailAddr | **Official Email Address** of the staff (strictly staff provided email) | varchar(50) |  | No |
| OffContactNo | **Contact Number** for the office of staff | char(10) |  | No |

### **CondoMng:** Store detail of management accounts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| AccID | **Unique identifier** to an individual account | char(10) | Primary Key  Foreign Key –> BaseAcc (AccID) | No |
| CondoID | **Unique identifier** to an individual condo | char(10) | Foreign Key ->  CondoDev (CondoID) | No |
| MngType | **Category Type** of Manager (Project,Financial , Communication ,Conflict and Operation ) | varchar(20) |  | No |

**ParkingLot:** Information about parking lot

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data Length and Type** | **Constraint** | **Null Value** |
| PKLotID | **Unique identifier** to an individual parking lot | char(10) | Primary Key  (Composite) | No |
| CondoID | **Unique identifier** to an individual condo | char(10) | Primary Key  Foreign Key ->  CondoDev (CondoID) | No |
| PKtype | **Parking Lot Type** (Temp/Permanent) | char(10) |  | No |
| Availability | **Availability** (Available/Unavailable) | char(10) |  | No |
| MonthlyCharge | MonthlyCharge (Null possible for temp) | smallint |  | Yes |