Coursework Submission

Part A

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GROUP: 5CS05; 5CS06 – 4:00pm to 6:00pm (Tuesday)

5COSC002W – Database Systems

# FOODTOOYOO - Conceptual ERD

# Data Dictionaries

## Entities

|  |  |
| --- | --- |
| Entity Name | Description |
| w1684891\_Member | A ‘Member’ is a customer that is registered with the FOODTOOYOO business. |
| w1684891\_Store | A ‘Store’ represents a retailer that is registered with the business and offers products for members to purchase. |
| w1684891\_Product | A ‘Product’ is an item offered by a retailer that is available to be purchased by members. |
| w1684891\_Basket | A ‘Basket’ is what a member creates in order to shop with a specific store. It is what will contain the members chosen products for that particular store. |
| w1684891\_Order | An ‘Order’ is what a customer places once they have confirmed and finalised their basket and would like to check out. |
| w1684891\_Payment | A ‘Payment’ represents the transaction a member makes to pay for their shopping order. |
| w1684891\_Driver | A ‘Driver’ is a person contracted by FOODTOOYOO to collect orders and deliver them to members. |
| w1684891\_Collection | A ‘Collection’ is the process of a driver picking up an order (or multiple) from a store. |

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| --- | --- | --- |
| General Entity | Specialised Entity | Description |
| w1684891\_Product | w1684891\_NonPerishable | A ‘Non-Perishable’ product is one that has no expiry date and can be stored indefinitely. |
| w1684891\_Product | w1684891\_Perishable | A ‘Perishable’ product is one that does have an expiry date and cannot be stored indefinitely. |
| w1684891\_Perishable | w1684891\_Food | A ‘Food’ item represents a perishable product of solid substance; one for which it is necessary to store the ingredient description and allergy information. |
| w1684891\_Perishable | w1684891\_Drink | A ‘Drink’ item represents a perishable product of liquid substance; one with a specified type and sugar content. |
| w1684891\_Drink | w1684891\_Alcoholic | An ‘Alcoholic’ item represents a drink which contains some percentage of alcohol. |
| w1684891\_Payment | w1684891\_CardPayment | A ‘Card Payment’ is a payment made specifically with a credit/debit card. |
| w1684891\_Payment | w1684891\_MobilePayment | A ‘Mobile Payment’ represents a digital payment made via a mobile wallet. |
| w1684891\_Driver | w1684891\_TwoWheel | A ‘Two Wheel’ driver is one that has a two-wheeled vehicle only capable of making smaller collections. |
| w1684891\_Driver | w1684891\_FourWheel | A ‘Four Wheel’ driver is one that has a four-wheeled vehicle, better suited to making larger collections. |
| w1684891\_Collection | w1684891\_SmallCollection | A ‘Small Collection’ is a collection for an order (or multiple) small enough to be picked up by a two-wheeled driver. |
| w1684891\_Collection | w1684891\_LargeCollection | A ‘Large Collection’ is a collection for an order (or multiple) that requires a four-wheeled driver to collect it. |

## Relationships and Multiplicities

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| --- | --- | --- | --- | --- | --- |
| Entity | Multiplicity | Relationship | Multiplicity | Entity | Justification |
| w1684891\_Member | 1..1 | has | 0..\* | w1684891\_Basket | A single member might not necessarily have a basket. |
| A single member could have many baskets. |
| A single basket must belong to a member, as basket that does not belong to a client would be redundant. |
| A single basket cannot belong to more than one registered member, as each member creates their own baskets. |
| w1684891\_Basket | 0..\* | is created for | 1..1 | w1684891\_Store | A single basket will be created for at least one store. A basket created for no store would have no purpose. |
| A single basket can only be created for one store. The brief specifies that a basket cannot be used between different stores. |
| A single store might not have any baskets created with it; it could be a newly registered store. |
| A single store might have many baskets created with it. |
| w1684891\_Basket | 0..\* | contains | 0..\* | w1684891\_Product | A single basket might be empty, as the member might not have put any items in it yet. |
| A single basket could contain many different products, as a member might want to buy a variety of products from a store. |
| A single product might not be contained in any basket at a given time. |
| A single product could be contained by many baskets, as many members might want to buy it. |
| w1684891\_Store | 1..1 | offers | 0..\* | w1684891\_Product | A single store might not offer any products yet. It could be only just registered or even recently closed. |
| A single store might be offering many products for sale. |
| A single product has to be offered by at least one store; if a product were not offered by anyone then there would be no way to sell it. |
| A single product can only be offered by a single store, as the brief specifies that the stores sell unique, branded products. |
| w1684891\_Order | 0..1 | is placed for | 1..1 | w1684891\_Basket | A single order cannot be placed for 0 baskets. If there was no basket, there would be no need to place an order in the first place. |
| A single order can only be placed for one basket; as specified by the managing director. |
| A single basket might not necessarily have on order placed for it yet. It might not be finalised yet, as the member is still in the process of shopping. |
| A single basket can only have one order placed for it; as specified by the managing director. |
| w1684891\_Order | 0..\* | is deli-vered to | 1..1 | w1684891\_Member | A single order must be delivered to the one member that placed it. |
| A single order cannot be delivered to more than one member. It can only be delivered once, to the one member that placed it. |
| A single member might not necessarily have any orders being delivered to them. They could be a new member. |
| A single member might have many orders delivered to them. It would be unreasonable to limit the amount of orders a member can place. |
| w1684891\_Payment | 0..1 | is processed for | 1..1 | w1684891\_Order | A single payment that is made must be processed for at least one order. A payment cannot be processed without an order to pay for. |
| A single payment cannot be processed for more than one order. As specified by the managing director, each payment can only be made for a single order. |
| A single order might not necessarily be paid for yet. The payment could still be pending. |
| A single order will only have one payment placed for it. As specified by the managing director, the payment cannot be split and must be made in full for the order. |
| w1684891\_Driver | 0..1 | delivers | 0..\* | w1684891\_Order | A single driver might not deliver any orders yet. It could be a newly registered driver. |
| A single driver could deliver many different orders. It would be inefficient to limit the amount of orders a driver can deliver. |
| A single order might not yet have a driver assigned to deliver it. The order might not be confirmed yet. |
| A single order will be delivered by a single driver. As the order is taken directly from the store and to the members address, there is no need to include any more drivers in the delivery. |
| w1684891\_TwoWheel | 1..1 | makes | 0..\* | w1684891\_SmallCollection | A single two-wheeled driver might not make any small collections yet. Could be a new driver. |
| A single two-wheeled driver could make many small collections; they are contracted for that purpose. |
| A single small collection will be made by at least one two-wheeled driver. A collection cannot be made by nobody. |
| A single small collection can only be made by one two-wheeled driver. A single collection cannot be made by multiple drivers. |
| w1684891\_FourWheel | 1..1 | makes | 0..\* | w1684891\_LargeColleciton | A single four-wheeled driver might not make any collections yet. Similarly to above, could be a new driver. |
| A single four-wheeled driver might make many collections as they are contracted to do just that. |
| A single large collection must be made by at least one four-wheel driver. A collection cannot be picked up by no one. |
| A single large collection will be made by only one four-wheeled driver. A collection cannot be made by multiple drivers. |
| w1684891\_Collection | 0..1 | is made for | 1..\* | w1684891\_Order | A single collection is made for at least one order. If there were no orders to pick up, there would be no need for a collection. |
| A single collection can handle many orders, as specified in the FOODTOOYOO brief. |
| A single order might not necessarily have a collection made for it yet. It could still be a pending order. |
| A single order will only have one collection made for it. It can only be picked up from the store once. |
| w1684891\_Collection | 0..\* | Is picked up at | 1..1 | w1684891\_Store | A single collection will be picked up at at least one store. You cannot make a collection from nowhere. |
| A single collection will not be picked up at more than one store; that would require multiple different collections. |
| A single store might have no collections picked up at it. It could be a brand-new store, or one that has not managed to sell anything yet. |
| A single store might have many collections made at it for the many orders that customers will place while buying from it. |

## Attributes & Primary Keys

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| --- | --- | --- |
| Entity Name | Attributes for this Entity | Justification |
| w1684891\_Member | w1684891\_memberID {PK} | An identification number assigned to each registered member that will help to uniquely identify them. This would be the primary key for this entity. |
| w1684891\_Member | w1684891\_memberFullName | A composite attribute made from the members first name and last name. It may be important to store their names separately, as well as together, for different levels of formality in different types of correspondences. |
| w1684891\_Member | w1684891\_memberFirstName | One of the attributes that makes up the full name. This will store just a member’s first name. |
| w1684891\_Member | w1684891\_memberLastName | Another attribute that makes up a member’s full name. This will store the member’s last name. |
| w1684891\_Member | w1684891\_memberDOB | This attribute will hold the members date of birth. Necessary to store as some of the products that can be purchased may require an age check. |
| w1684891\_Member | /w1684891\_memberAge | An attribute derived from the memberDOB which is a more convenient way to store the member age for above mentioned checks. |
| w1684891\_Member | w1684891\_memberAddress | A composite attribute containing the members full home address. It may be important to keep the full address for ease of deliveries, and to have it split for efficiently assigning drivers to make these deliveries. |
| w1684891\_Member | w1684891\_memberStreet | One of the attributes that make up the full address. This attribute stores the street name that the user lives on. |
| w1684891\_Member | w1684891\_memberCity | Another attribute that makes up the full address. This attribute stores the use’s home city. |
| w1684891\_Member | w1684891\_memberPostcode | Another attribute that makes up the full address. This one stores the member’s home postcode. |
| w1684891\_Member | w1684891\_memberEmailAddress | This attribute stores the email address that a member has registered with. |
| w1684891\_Member | w1684891\_memberPhoneNo | This attribute stores a member’s preferred phone number, in case there is need for direct contact. |
| w1684891\_Member | w1684891\_memberRegDate | This attribute stores a member’s date of registration with the FOODTOOYOO business. |
| w1684891\_Member | w1684891\_memberRegStatus | This attribute will store a member’s registration status, like whether their account has been created, their email address confirmed, or whether they have deactivated their account. |
| w1684891\_Store | w1684891\_storeID {PK} | This attribute is an identification number generated for each registered retail store, used to uniquely identify them within the FOODTOOYOO system. This attribute is the primary key for the store entity. |
| w1684891\_Store | w1684891\_storeName | This attribute contains the name of the retailing store. |
| w1684891\_Store | w1684891\_storeDescription | This attribute contains the description text for a store and could be used to identify what the store specialises in, or what sort of products it might offer. |
| w1684891\_Store | w1684891\_storeMgrFullName | This is a composite attribute that contains the store manager’s full name. Similarly to member, it may be a good idea to store the name in full, or separately, for different levels of correspondence formality. |
| w1684891\_Store | w1684891\_storeMgrFirstName | Attribute containing the store manager’s first name. One of the attributes that makes up the store manager’s full name. |
| w1684891\_Store | w1684891\_storeMgrLastName | Attribute containing the store manager’s last name. One of the attributes that makes up the store manager’s full name. |
| w1684891\_Store | w1684891\_storeAddress | Similar to a member’s full address. This is an attribute that is composite and stores a store’s full address together. |
| w1684891\_Store | w1684891\_storeStreet | This attribute contains the street name that the store is located on. It is one of the attributes that makes up the full address. |
| w1684891\_Store | w1684891\_storeCity | This attribute contains the city that the store is located in. It is one of the attributes that makes up the full address. |
| w1684891\_Store | w1684891\_storePostcode | This attribute contains the store’s post code. It is one of the attributes that makes up the full address. |
| w1684891\_Store | w1684891\_storeEmailAddress | The email address that the store is registered with. |
| w1684891\_Store | w1684891\_storePhoneNo | This is the main phone number that the registered store operates under. |
| w1684891\_Store | w1684891\_storeWebsite | This attribute contains a link to the store’s website address. |
| w1684891\_Store | w1684891\_storeRegDate | This attribute stores the date at which the retailer has registered with the FOODTOOYOO business. |
| w1684891\_Store | w1684891\_storeRegStatus | This attribute contains the registration status of the retailing store. For example, if the store is only just signed up, if it is certified and confirmer or if it has been deactivated. |
| w1684891\_Product | w1684891\_productID {PK} | This attribute is the primary key for this entity. It is a unique identification number for each product. |
| w1684891\_Product | w1684891\_productName | This attribute stores the name of this branded product. |
| w1684891\_Product | w1684891\_productDesc | This attribute stores the description of the product provided by the retailer. |
| w1684891\_Product | w1684891\_productWeight | This attribute stores the products weight. It is additional information about the product that might be crucial in determining the order size. |
| w1684891\_Product | w1684891\_productDimensions | This attribute stores the products physical dimensions. Another piece of additional information that may be crucial in determining the order size. |
| w1684891\_Product | w1684891\_productPrice | This attribute stores the sale price of a product. |
| w1684891\_Product | w1684891\_productStockLevel | This attribute stores the level of available stock for a particular product. |
| w1684891\_Product | w1684891\_productManuDate | This attribute stores the date of manufacture of a product. |
| w1684891\_Perishable | w1684891\_perishableExpiryDate | This attribute stores the expiry date of products which are perishable. |
| w1684891\_Food | w1684891\_foodIngredientDesc | This attribute stores the description of ingredients that a specific food consists of. |
| w1684891\_Food | w1684891\_foodAllergyInfo | This attribute stores information about the any allergens that this food might contain. |
| w1684891\_Drink | w1684891\_drinkType | This attribute stores the type of the drink product, as required by the brief. |
| w1684891\_Drink | w1684891\_drinkSugarContent | This attribute stores the sugar contents of a specific drink product. |
| w1684891\_Alcoholic | w1684891\_alcoholByVolume | This attribute stores the alcohol by volume contained in an alcoholic drink. |
| w1684891\_Basket | w1684891\_basketID {PK} | This attribute is the primary key for this entity. It stores a unique identification number for every basket. |
| w1684891\_Basket | w1684891\_basketCreationDate | This attribute stores a basket’s creation date. |
| w1684891\_Basket | w1684891\_basketStatus | This attribute stores the status of a basket. For example, whether the user is still in the process of shopping with this basket, or whether it is confirmed and ready for an order to be placed for it. |
|  | w1684891\_quantity | This attribute does not belong to an entity, but instead a relationship between the Basket and the Product entities. This will be the quantity of a specific product within a specific basket once this many-to-many relationship is resolved. |
| w1684891\_Order | w1684891\_orderID {PK} | This is the primary key for this entity. It stores a unique identification number for each order. |
| w1684891\_Order | w1684891\_orderTotal | This attribute stores the total price of the order that the member has to pay. |
| w1684891\_Order | w1684891\_orderPlacementDT | This attribute stores the date and time that the order was placed. |
| w1684891\_Order | w1684891\_orderConfirmationDT | This attribute stores the date and time of when the order is confirmed. |
| w1684891\_Order | w1684891\_orderStatus | This attribute stores the status of the order, such as pending, confirmed, in transit, delivered. |
| w1684891\_Order | /w1684891\_orderExpDeliveryDT | This is a derived attribute of the expected delivery date and time that is calculated by an algorithm from the date and time when the order is confirmed. |
| w1684891\_Order | w1684891\_orderActDeliveryDT | This attribute is of the actual date and time that the order is delivered to the member that placed it. |
| w1684891\_Payment | w1684891\_paymentID {PK} | This is the primary key for the payment entity. It is a unique identification number for each payment made. |
| w1684891\_Payment | w1684891\_paymentAmount | This is the total amount that this payment is made for. |
| w1684891\_Payment | w1684891\_paymentDate | This is the date at which the payment is processed. |
| w1684891\_Payment | w1684891\_paymentTime | This attribute stores the time at which the payment is processed. |
| w1684891\_Payment | w1684891\_paymentStatus | This attribute stores that status of the payment, such a pending, processed, or cancelled. |
| w1684891\_CardPayment | w1684891\_cardSecurityCode | This attribute stores the security of the credit/debit card that this payment is made with. |
| w1684891\_MobilePayment | w1684891\_mobileWallet | This attribute stores the information of the mobile wallet that was used to make this payment. |
| w1684891\_Driver | w1684891\_driverID {PK} | This is the primary key for this entity. This attribute stores the unique identification number created for each driver registered with FOODTOOYOO. |
| w1684891\_Driver | w1684891\_driverFullName | This is a composite attribute that stores the full name of the driver. |
| w1684891\_Driver | w1684891\_driverFirstName | This is one of the attributes that makes up the driver’s full name. It stores the driver’s first name. |
| w1684891\_Driver | w1684891\_driverLastName | This attribute stores the driver’s last name and is the other attribute that makes up the driver’s full name. |
| w1684891\_Driver | w1684891\_driverDOB | This attribute is the drivers date of birth. It is important to store this to ensure that the driver is of legal driving age. |
| w1684891\_Driver | /w1684891\_driverAge | This attribute is derived from the driverDOB and stores the driver’s age for the convenience of checking whether they fit the legal driving age. |
| w1684891\_Driver | w1684891\_driverAddress | This is a composite attribute that stores the driver’s full home address. It might be necessary to store this for the efficiency of driver assignment. |
| w1684891\_Driver | w1684891\_driverStreet | This attribute stores the driver’s home street and is used as one of the attributes to make up the full address. |
| w1684891\_Driver | w1684891\_driverCity | This attribute is the driver’s home city and is also an attribute used to comprise the full address. |
| w1684891\_Driver | w1684891\_driverPostcode | This attribute stores the driver’s postcode and is also an attribute which makes up the full address. |
| w1684891\_Driver | w1684891\_driverEmailAddress | This attribute stores the email address that the driver has registered with. |
| w1684891\_Driver | w1684891\_driverPhoneNo | This attribute stores the driver’s preferred phone number for any essential contact. |
| w1684891\_Driver | w1684891\_driverContractDate | This attribute stores the drivers contract date to track when the driver has started working with the business. |
| w1684891\_Driver | w1684891\_driverHourlyRate | This attribute stores the driver’s agreed-upon hourly rate. |
| w1684891\_Driver | w1684891\_driverLicenseNo {AK} | This attribute stores the driver’s license number. It could also be used as an alternate key to uniquely identify the driver. |
| w1684891\_Driver | w1684891\_driverLicenseExpDate | This attribute stores the expiry date of the driver’s license, to ensure that the driver can legally drive. |
| w1684891\_Colleciton | w1684891\_collectionID {PK} | This is the primary key for the collection entity. It is a unique identification number assigned to every collection that is made. |
| w1684891\_Colleciton | w1684891\_collectionDate | This attribute stores the date of when a collection is made. This is useful to track the status of orders. |
| w1684891\_Colleciton | w1684891\_collectionTime | This attribute stores the time of when a collection is made. |
| w1684891\_Colleciton | w1684891\_collectionStatus | This is the status of a collection; could be prepared or collected. |
| w1684891\_Colleciton | /w1684891\_amountOfOrders | This is an attribute derived from the orders linked to the collection. It specifies the amount of orders included in this collection. |