

# Shipyard Database

INFO6210 - Fall2019

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## Mission Statement:

- The purpose of this database is to provide maintenance for ship and administer services and resources for crew members.

## Business Problems Addressed:

- Provide servicing for ships by having the Production Department manage ship dock, warehouse inventory and maintenance tasks.
- Ensure training activities and safety measures for crew by assigning overseeing responsibility to HR Managers.
- Utilize Account Section to track employees' (Managers and Crew) pay stub, PTO and Provident Funding.

## Design Decision:

#	Entity	Why Entity Included	How Entity is Related to Other Entities
1	Product_Supplier	To link Product and Supplier entities together	This is an associative entity for Product and Supplier entities. This entity is created to resolve a many-to-many relationships.
2	Product	To track maintenance supplies' information and quantity. (e.g. paints and spare parts)	PK, Product_id is created to link the Product entity to Warehouse entity and Product_Supplier entity. This allows updating of the number of available supplies when they are transferred out of the warehouse or get restocked. The supplier information of each product can be traced via product_id.
3	Supplier	To track suppliers' data such as names and contact information	PK, Supplier_id is created to link the Supplier entity to the Product entity via an associative entity, Product_Supplier.
4	Equipment	To track test equipment used in ship maintenance and safety measures	PK, Equipment_id is created to link the Equipment entity to the Warehouse entity and Safety entity. This allows updating of the number of available test equipment used in maintenance and safety measures.
5	Warehouse	To track stored inventory - both test equipment and maintenance supplies	The following entities: Manager, Equipment, Product are linked to Warehouse Entity via FKs: Manager_id, Equipment_id, and Product_id. It is a child entity and tracks the numbers of available supplies and test equipment.

6	Maintenance	To assign maintenance responsibilities, record ships required servicing and the types of service they received, test equipment and maintenance supplies used, and work statuses.	The following entities: Manager, Crew, Ship, Coating, Machinery, and Electrical are linked to Maintenance entity via FKs: Manager_id, Coating_id, Machinery_id, Electrical_id, Crew_id, and Ship_id. Each unique row traces work statuses and the responsible party.
7	Coating	To record and track statuses of coating work	PK, Coating_id is created to link the Coating entity to the Maintenance entity.
8	Machinery	To record and track statuses of machinery work	PK, Machinery_id is created to link the Machinery entity to the Maintenance entity.
9	Electrical	To record and track statuses of electrical work	PK, Electrical_id is created to link Electrical entity to Maintenance entity
10	Account	To maintain each employee's account and pay stub information	PK, Account_id is created to link the Account entity to the following associative entities entities: Manager_Account, Crew_Manger_Account, and, Account_PTO_Provident Fund. This allows tracking of each employee's pay stub. Its association with PTO and Provident Fund entities also allows tracking of these two benefits.
11	Account_PTO_Provident	To link Account, PTO, and Provident Fund together	This is an associative entity for Account, PTO, and Provident Fund.
12	PTO	To track employees' PTO	PK, PTO_id is created to link PTO entity to Account_PTO_Provident, an associative entity. This relation allows each PTO information to be recorded under each corresponding employee's account.
13	Provident Fund	To track employee's provident fund contributions	PK, Provident_id is created to link Provident Fund entity to Account_PTO_Provident, an associative entity. This relation allows Provident Fund plan to be registered under each corresponding employee's account
14	Manager_Account	To link Manager and Account entities together	This is an associative entity for Manager and Account.
15	Manager	To record managers' information (names and titles) and link the managers to the responsibilities they are overseeing.	PK, Manager_id is created to link Manager entity to the following entities: Manager_Account, Crew_Manger_Account, Dock Dept, HR Dept, Production Dept, Responsibility, Maintenance, and Warehouse. The relations allow assignments of managerial responsibilities in order to efficiently run all of the departments.
16	Crew_Manger_Account	To link Crew, Manager and Account entities together	This is an associative entity for Crew, Manager, and Account.

17	Crew	To record the crew's information and link the crew to their managers who oversee their training and assignments	PK, Crew_id is created to link Crew entity to Crew_Manger_Account entity. This relation allows manager-crew assignments.
18	Responsibility	To allow tracking of managers and their crews' records/feedback.	This is a child entity that contains Manager_id, Berth_id, Safety_id, Training_id, and Feedback_id. Each unique row relays a manager and his/her crew member's beth, feedback, safety and training records.
19	Berth	To track status of berths and their assignments to crew	PK, Berth_id is created to link the Berth entity to the Responsibility entity where Berth's assignment of each crew member is tracked.
20	Training	To track crew's training activities	PK, Training_id is created to link the Training entity to the Responsibility entity where training activities of each crew member is tracked.
21	Feedback	To record feedback from employees	PK, Feedback_id is created to link Feedback entity to the Responsibility entity where employees' feedback are recorded.
22	Safety	To deploy safety measures to crew	PK, Safety_id is created to link Safety entity to Responsibility entity where measures for employee safety are tracked. Safety entity also relates to Equipment entity via an associative entity. This allows equipment used in safety measures to be tracked.
23	Safety_Equipment	To link Safety and Equipment entities together	This is an associative entity for Safety and Equipment entities.
24	HR Dept	To manage projects and the associated managers	Project_id and Manager_id as composite PKs. Each unique row presents a project identifier and its overseeing manager.
25	Production Dept	To record projects and the associated managers	Project_id and Manager_id as composite PKs. Each unique row presents a project identifier and its overseeing manager.
26	Dock Dept	To manage pier-ship assignments	This is a child entity that contains Dockdept_id, Manager_id, Ship_id, and Pier_id. Each unique row allows managing of pier-ship assignments.
27	Ship	To record ships' information (names and types)	PK, Ship_id is created to link the Ship entity to the Maintenance entity and DockDept entity. These relations allow docking of ships and their maintenance to be tracked.
28	Pier	To record piers' information (names, numbers) and their availability.	PK, Pier_id is created to link the Pier entity to the DockDept entity. This allows Dock Dept to manage pier availability.

