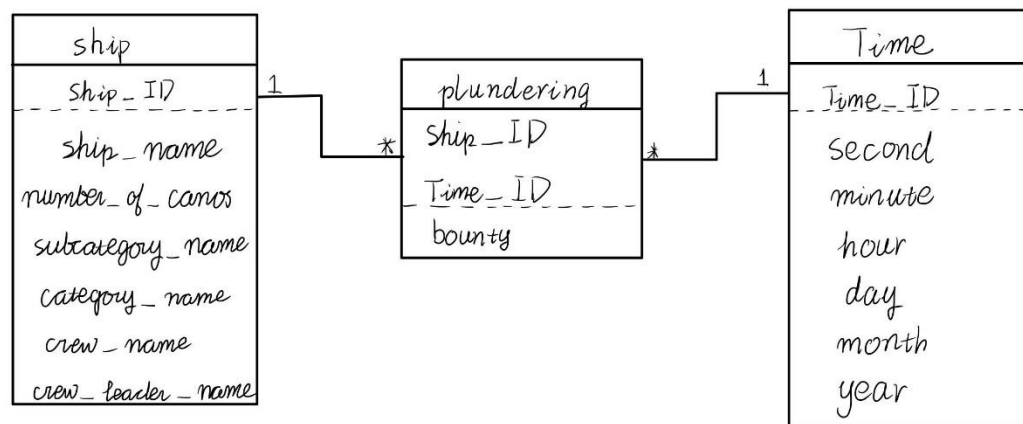Exercise 1

(a) Fact table: plundering

Dimension table: ship, ship_subcategory, ship_category, pirate_crew, pirate_crew_leader, second, minute, hour, day, month, year.

Difference: Facts are usually numeric measurement and measurable values, while dimension describe a possible perspective of the associated facts.
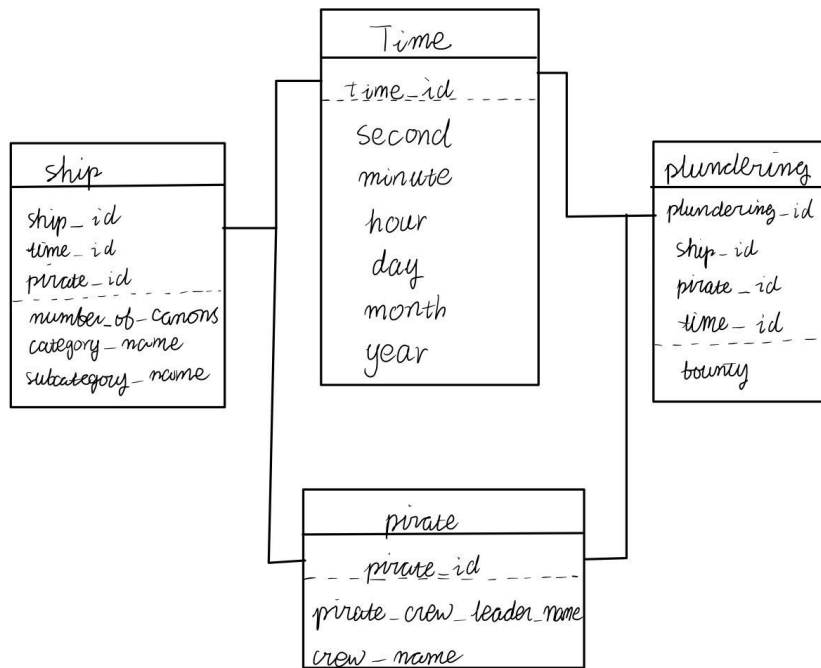
(b) It is a snowflake schema, because each level of categorization is placed in a separate table so that each table corresponds to a categorization level.

(c)

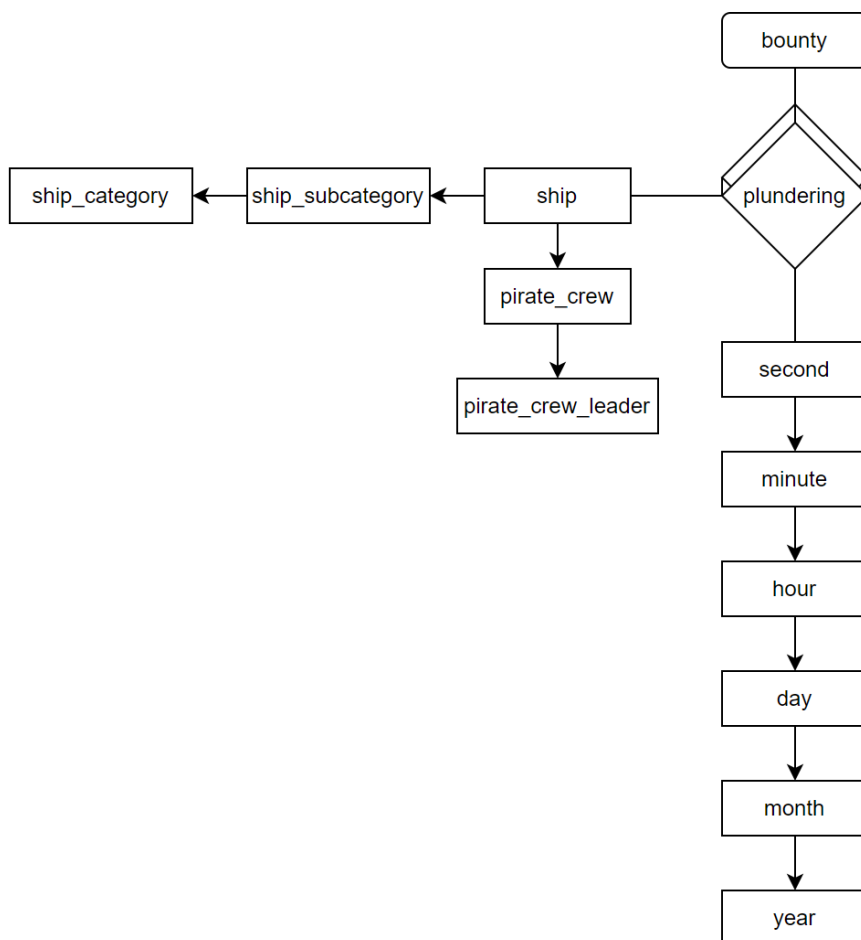| ship		plundering		Time
Ship_ID	1	Ship_ID	1	Time_ID
ship_name	*	Time_ID	*	second
number_of_canos		bounty		minute
subcategory_name				hour
category_name				day
crew_name				month
crew_leader_name				year

(d) Reasons for preferring the star schema: 1. simple structure (allows easy formulation of queries) 2. Simple and flexible representation of classification hierarchies (in columns in the dimension tables)

Reasons for preferring the snowflake schema:

Time

- time_id
- second
- minute
- hour
- day
- month
- year

ship

- ship_id
- time_id
- pirate_id
- number_of_canons
- category_name
- subcategory_name

plundering

- plundering_id
- ship_id
- pirate_id
- time_id
- bounty

pirate

- pirate_id
- pirate_crew_leader_name
- crew_name

(e)

```
ship_category  <—  ship_subcategory  <—  ship  —  <plundering>  —  bounty
                                            |                        |
                                            v                     second
                                       pirate_crew                   |
                                            |                      minute
                                            v                        |
                                    pirate_crew_leader              hour
                                                                     |
                                                                    day
                                                                     |
                                                                   month
                                                                     |
                                                                    year
```

(f)

Exercise 2

Dimension_ID	Level1_ID	Level2_ID	Level3_ID	Level
5801 S Ellis Ave	Chicago	Illinois	United States	0
Neuschwansteinstr. 20	Schwangau	Bavaria	Germany	0
Christophstr. 1	Düsseldorf	North Rhine-Westphalia	Germany	0
Universitätsstr. 1	Düsseldorf	North Rhine-Westphalia	Germany	0
Düsseldorfer Str. 1	Cologne	North Rhine-Westphalia	Germany	0
Platz der Republik 1	Berlin	Berlin	Germany	0
Chicago	Illinois	United States	NULL	1
Berlin	Berlin	Germany	NULL	1
Cologne	North Rhine-Westphalia	Germany	NULL	1
Düsseldorf	North Rhine-Westphalia	Germany	NULL	1
Schwangau	Bavaria	Germany	NULL	1
Illinois	United States	NULL	NULL	2
Berlin	Germany	NULL	NULL	2
North Rhine-Westphalia	Germany	NULL	NULL	2
Bavaria	Germany	NULL	NULL	2
United States	NULL	NULL	NULL	3
Germany	NULL	NULL	NULL	3