A background image featuring a LEGO Star Wars Stormtrooper in the center, holding a black instruction manual titled 'DEATH STAR' and '1 of 2'. The trooper is wearing a white helmet and a red cape. To the left and right are other LEGO figures, including a white one on the left and a grey one on the right. The background is a blurred cityscape.

Project 2: Lego

Spares Management

Content

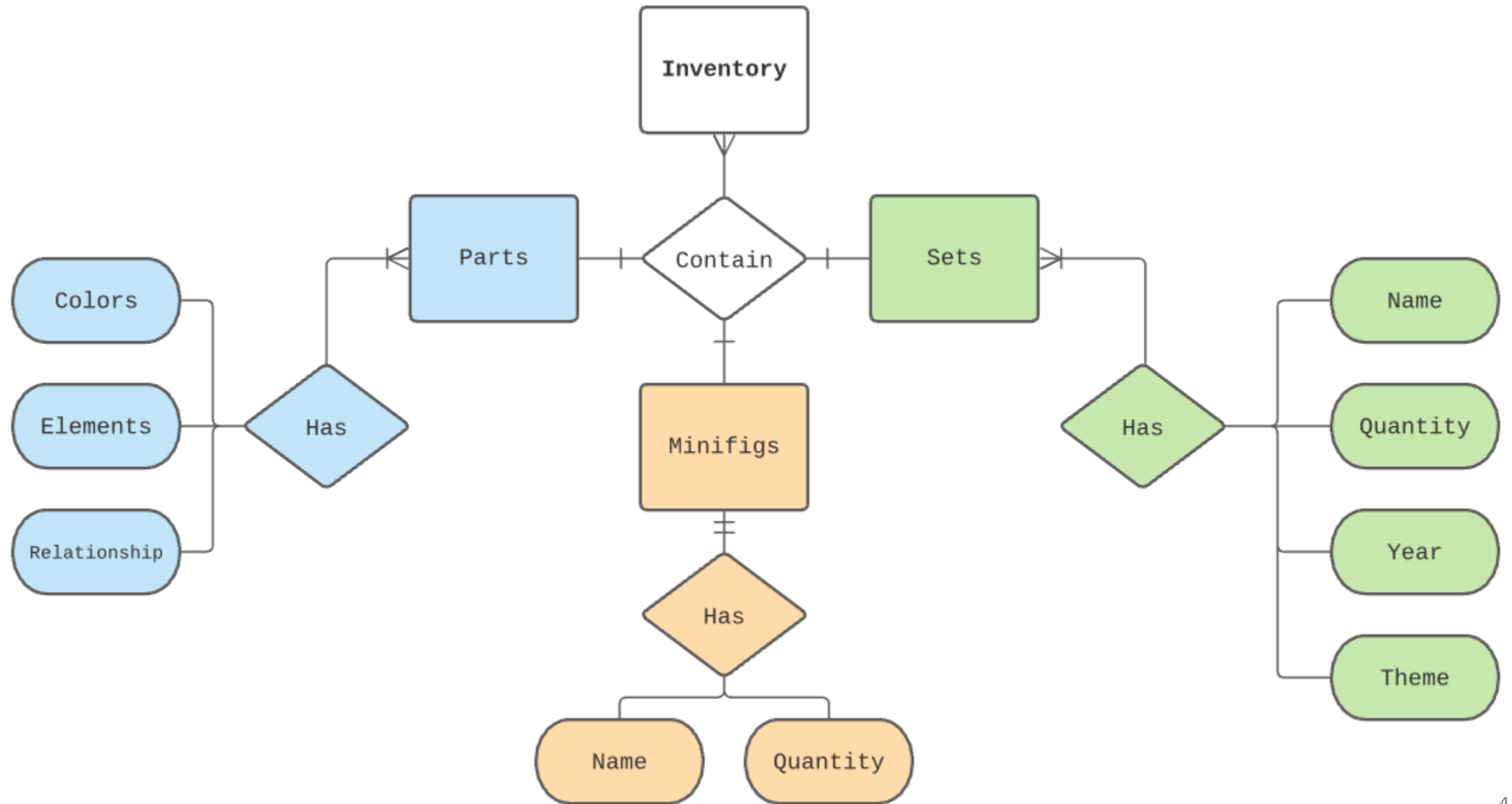
- Problem Statement
- ER Diagram
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Problem Statement

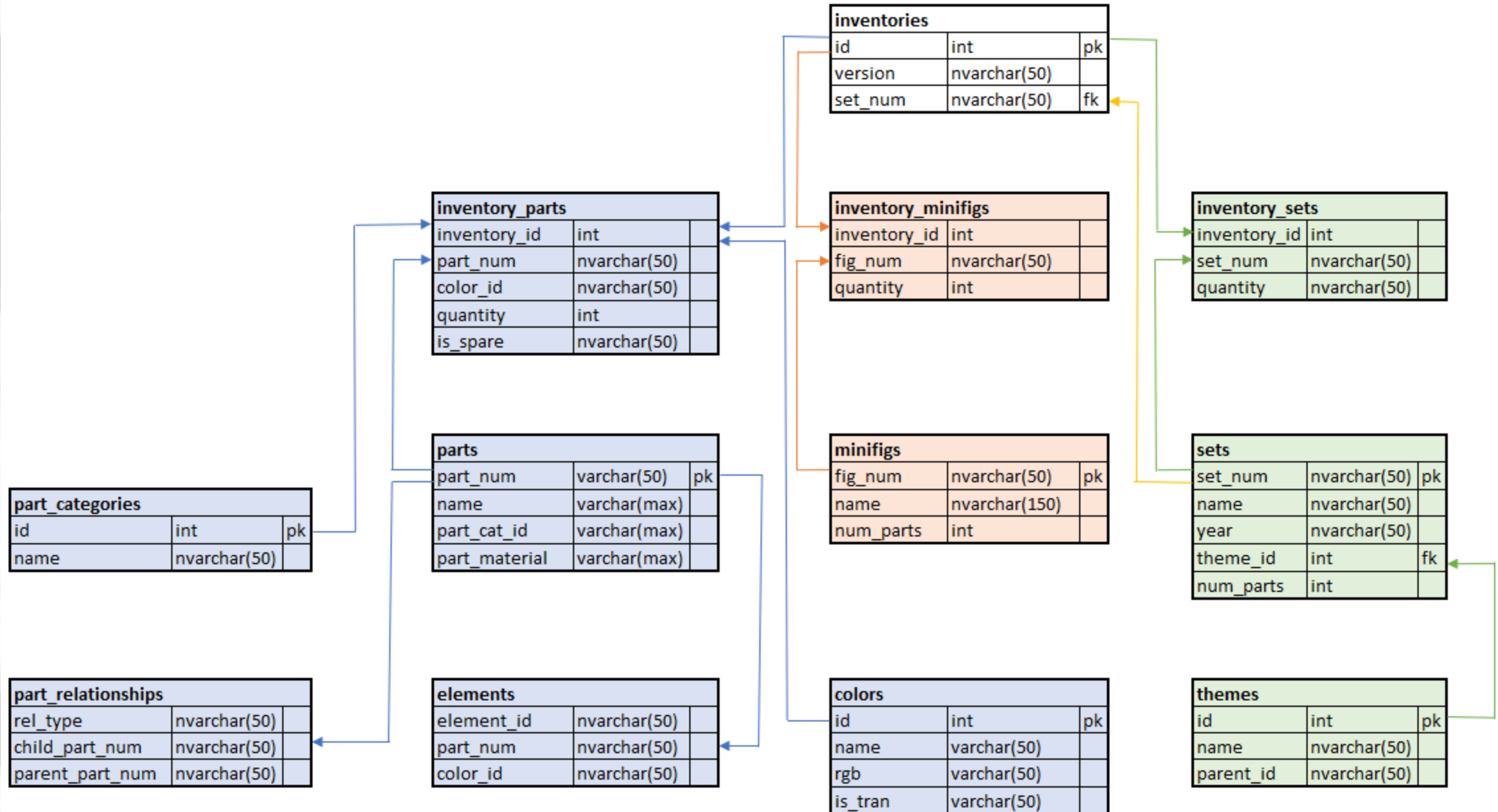
- Players are unable to build alternative design with the spares.
- To build an environment or theme, players will need to wait till Lego releases Collection Set.



ER Diagram



Schema



What to find out?

1. Top 20 themes with the most pieces
2. Sets with Common Theme
3. Data Trend

Top 20 themes with the most pieces

```
-- Let's see which theme has the highest number of sets
select top 20 t.name as 'Theme', s.name as 'Set', s.year, s.num_parts from themes t
inner join sets s
on t.id = s.theme_id
order by s.num_parts desc;
```

	Theme	Set	year	num_parts
1	Legends of Chima	The Ultimate Battle for Chima	2015	9987
2	Creator Expert	Colosseum	2020	9036
3	Ultimate Collector Series	UCS Millennium Falcon	2017	7541
4	Harry Potter	Hogwarts Castle	2018	6020
5	Creator Expert	Taj Mahal	2017	5923
6	Creator Expert	Taj Mahal	2008	5922
7	Harry Potter	Diagon Alley	2020	5545
8	Star Wars	Star Wars / M&M Mosaic - ...	2005	5462
9	Educational and Dacta	Window Exploration Bag	2010	5200
10	Ultimate Collector Series	Millennium Falcon - UCS	2007	5195
11	Ninjago The Movie	NINJAGO City	2017	4873
12	Ultimate Collector Series	Imperial Star Destroyer	2019	4784
13	Ghostbusters	Firehouse Headquarters	2016	4642
14	Mosaic	Personalised Mosaic Portrait	2016	4502
15	Creator Expert	Tower Bridge	2010	4295
16	LEGO Art	Harry Potter Hogwarts Crests	2021	4249
17	Creator Expert	Big Ben	2016	4167
18	Creator Expert	Roller Coaster	2018	4124
19	Construction	Liebherr R 9800 Excavator	2019	4108
20	Disney	Disney Castle	2016	4081

Supplement

```
-- Notice that there are repetitions in Theme. Let's see Lego got the most Themes.  
select top 20 theme_id, count(theme_id) as 'No. of theme' from sets  
group by theme_id  
order by count(theme_id) desc;
```

	theme_id	No. of theme
1	501	809
2	158	761
3	494	418
4	435	372
5	503	362
6	497	332
7	505	328
8	632	299
9	371	271
10	516	248
11	443	197
12	1	178
13	672	175
14	504	174
15	61	150
16	409	148
17	453	142
18	52	137
19	408	132
20	254	126

Sets with Common Theme

```
select*from sets where theme_id = 501;  
select*from themes where id = 501;
```

	set_num	name	year	theme_id	num_parts
1	13078-1	Sports Bag, Pink	2008	501	0
2	13098-1	Pencil Case, Pink (Horses)	2008	501	0
3	13148-1	Wheeled Carry-on Luggage, Pink (Horses)	2008	501	0
4	1525-2	World Pen	2000	501	0
5	2027-1	Alpha Pen Pack	2000	501	0
6	20502-1	Electronic Deluxe Sword	2005	501	0
7	258175-1	Play and Build Remote for Nintendo Wii - Red	2010	501	0
8	258175-2	Play and Build Remote for Nintendo Wii - Pirates...	2011	501	25
9	258175-3	Play and Build Remote for Nintendo Wii - Orange	2010	501	23
10	258175-4	Play and Build Remote for Nintendo Wii - Blue	2010	501	0
11	2850829-1	Luke Skywalker Watch	2011	501	0
12	2851146-1	Pirates T-shirt	2009	501	0
13	2853596-1	Indiana Jones 2: The Adventure Continues - Wii	2009	501	0

	id	name	parent_id
1	501	Gear	NULL

```
select*from sets where theme_id = 158;  
select*from themes where id = 158;
```

	set_num	name	year	theme_id	num_parts
1	20006-1	Clone Turbo Tank - Mini	2008	158	64
2	20007-1	Republic Attack Cruiser - Mini	2009	158	84
3	20009-1	AT-TE Walker - Mini	2009	158	94
4	20010-1	Republic Gunship	2009	158	94
5	20016-1	Imperial Shuttle - Mini	2010	158	70
6	20018-1	AT-AT Walker - Mini	2010	158	83
7	20019-1	Slave I	2011	158	76
8	20021-1	Bounty Hunter Gunship - Mini	2011	158	81
9	2853590-1	Stormtrooper	2009	158	5
10	2853835-1	White Boba Fett Figure	2010	158	5
11	2856197-1	Shadow ARF Trooper	2011	158	5
12	30004-1	Battle Droid on STAP	2009	158	28
13	30005-1	Imperial Speeder Bike	2009	158	33

	id	name	parent_id
1	158	Star Wars	NULL

Supplement: Challenge encountered in data

- Duplicate sets (3 to 4 Millennium Falcon?)



- Data does not include Set's origin
 - (e.g. Star Wars Episode?)



Excel & Dashboard

Analysis

- Top 3 colours



- These 3 colours are commonly found in most spaceships
- Episode 7 has the most spares

Ideas for next collection

- Use the spares to build hangar/equipment



- Expansion Set



References

- <https://rebrickable.com/downloads/>
- <https://brickset.com>



The End

Thank you