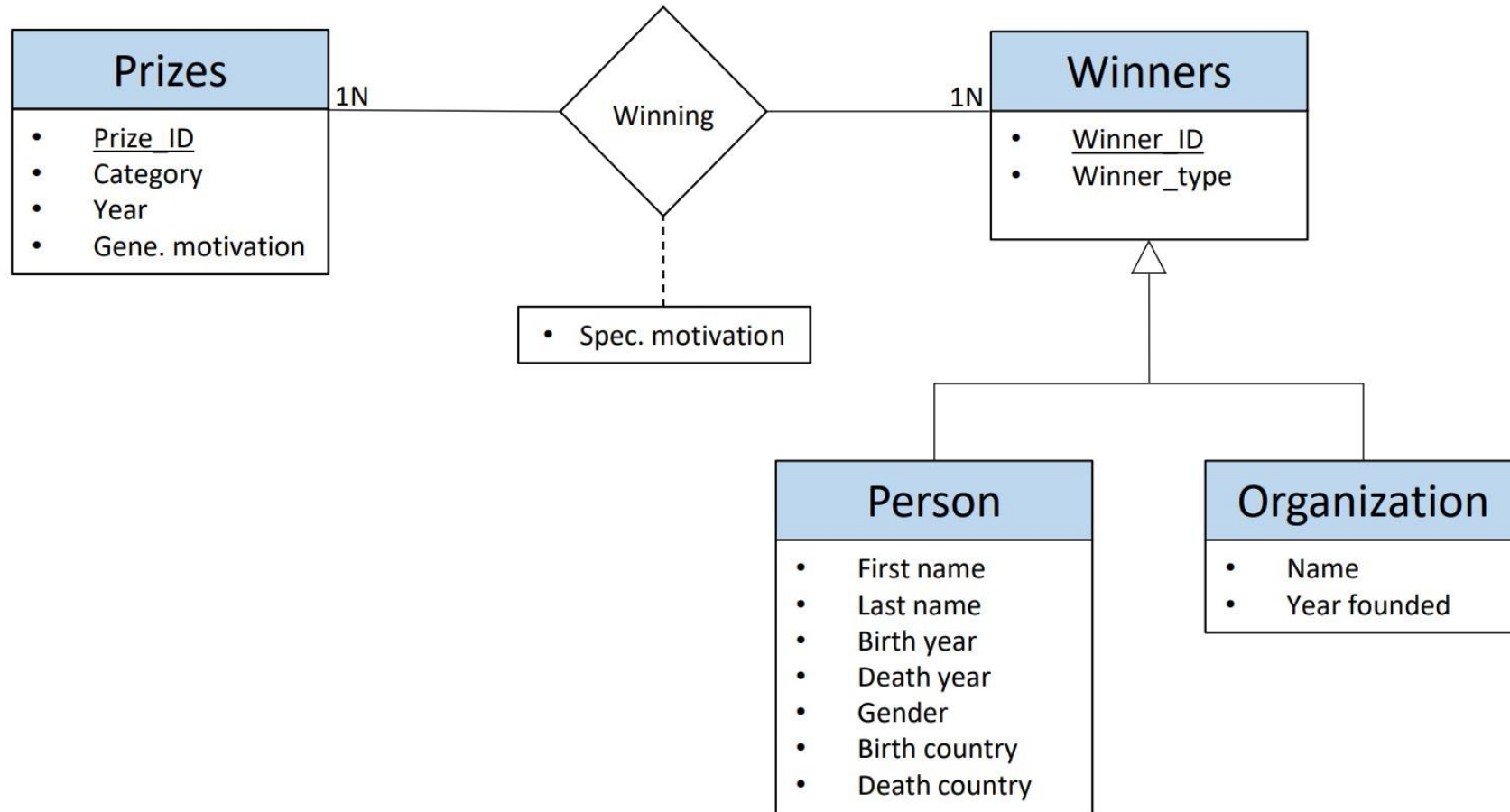


# Nobel Prize database

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# ER diagram of the database



# Give the name(s) of the person(s) that has/have won the most times

$\Pi_{winnerid,firstname,lastname,numprize}(winnerid \bowtie_{count(winnerid) \text{ as } numprize} (people \bowtie_{wid=wid} winningpid=pidprize))$

```
1 SELECT winnerid, firstname, lastname, count(winnerid)
2 FROM people
3 NATURAL JOIN winning
4 NATURAL JOIN prizes
5 GROUP BY winnerid
6 ORDER BY count DESC;
7
```

Data output Messages Notifications

	winnerid [PK] numeric	firstname text	lastname text	count bigint
1	743	Barry	Sharpless	2
2	222	Frederick	Sanger	2
3	66	John	Bardeen	2
4	217	Linus	Pauling	2
5	6	Marie	Curie	2

# What is the most common nationality of Nobel Prize winners?

$\Pi_{\text{borncountry}, \text{count}}(\text{borncountry} \bowtie_{\text{count}(\text{borncountry}) \text{ as count}} (\text{people} \bowtie_{\text{winnerid}=\text{winnerid}} \text{winning} \bowtie_{\text{prizeid}=\text{prizeid}} \text{prizes}))$

```
1 SELECT borncountry, count(borncountry)
2 FROM people
3 NATURAL JOIN winning
4 NATURAL JOIN prizes
5 GROUP BY borncountry
6 ORDER BY count DESC;
```

Data output   Messages   Notifications

	borncountry text	count bigint
1	USA	287
2	United Kingdom	90

# How old is the all-time youngest Nobel Prize winner?

$\Pi_{winnerid,firstname,lastname,born,category,year,(year-born)}(people \bowtie_{winnerid=winnerid} winning \bowtie_{prizeid=prizeid} prizes)$

```
1 SELECT winnerid, firstname, lastname, born, prizes.category, prizes.year, (year-born) as age
2 FROM people
3 NATURAL JOIN winning
4 NATURAL JOIN prizes
5 ORDER BY age ASC;
```

Data output Messages Notifications

	winnerid numeric	firstname text	lastname text	born numeric	category text	year numeric	age numeric
1	914	Malala	Yousafzai	1997	peace	2014	17
2	967	Nadia	Murad	1993	peace	2018	25
3	21	Lawrence	Bragg	1890	physics	1915	25

# Are there any prizes that no one won? How many and why?

$\Pi_{overallmotivation}(\sigma_{winnerid=null}(prizes \bowtie_{winnerid=winnerid} winning))$

```
1 SELECT COUNT(overallmotivation) as no_winner
2 FROM winning
3 FULL OUTER JOIN prizes
4 ON prizes.id = winning.prizeid
5 WHERE winnerid IS NULL;
```

```
1 SELECT overallmotivation
2 FROM winning
3 FULL OUTER JOIN prizes
4 ON prizes.id = winning.prizeid
5 WHERE winnerid IS NULL;
```

- **Result:** 49 prizes. The motivation in all cases were either "No Nobel Prize was awarded this year. The prize money was allocated to the Special Fund of this prize section." or "No Nobel Prize was awarded this year. The prize money was with 1/3 allocated to the Main Fund and with 2/3 to the Special Fund of this prize section."