# Searching for Data

Linear Search

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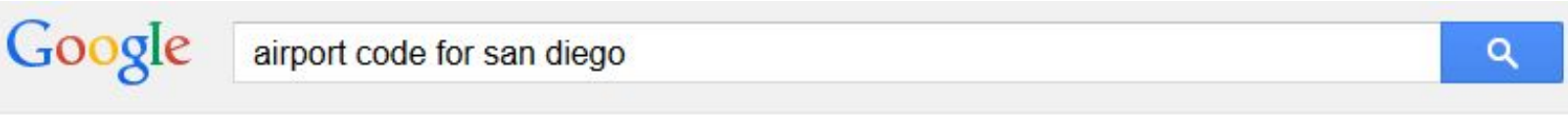
by Christine Alvarado, Mia Minnes, and Leo Porter, 2015.

# By the end of this video you will be able to…

- Motivate the importance of search
- Write code to perform a linear search


Google
airport code for san diego
Web
Maps
News
Images
Shopping
More
Search tools
About 21,000,000 results (0.73 seconds)
San Diego International - World Airport Codes
https://www.world-airport-codes.com/.../san-diego-international-6531.ht...
IATA Code, SAN, ICAO Code, KSAN. FAA Code, Phone, (619) 231 2100. Fax, Latitude, 32.7336006. Longitude, -117.1900024, Time Zone ...
Airport Codes
www.fodors.com/deals/airports.html
Fodor's
Airport Codes. Browse by ... Alamosa, CO; ALS; San Luis Valley Regional Airport. Albany, NY; ALB ..... San Diego, CA; SAN; San Diego International Airport. San ...

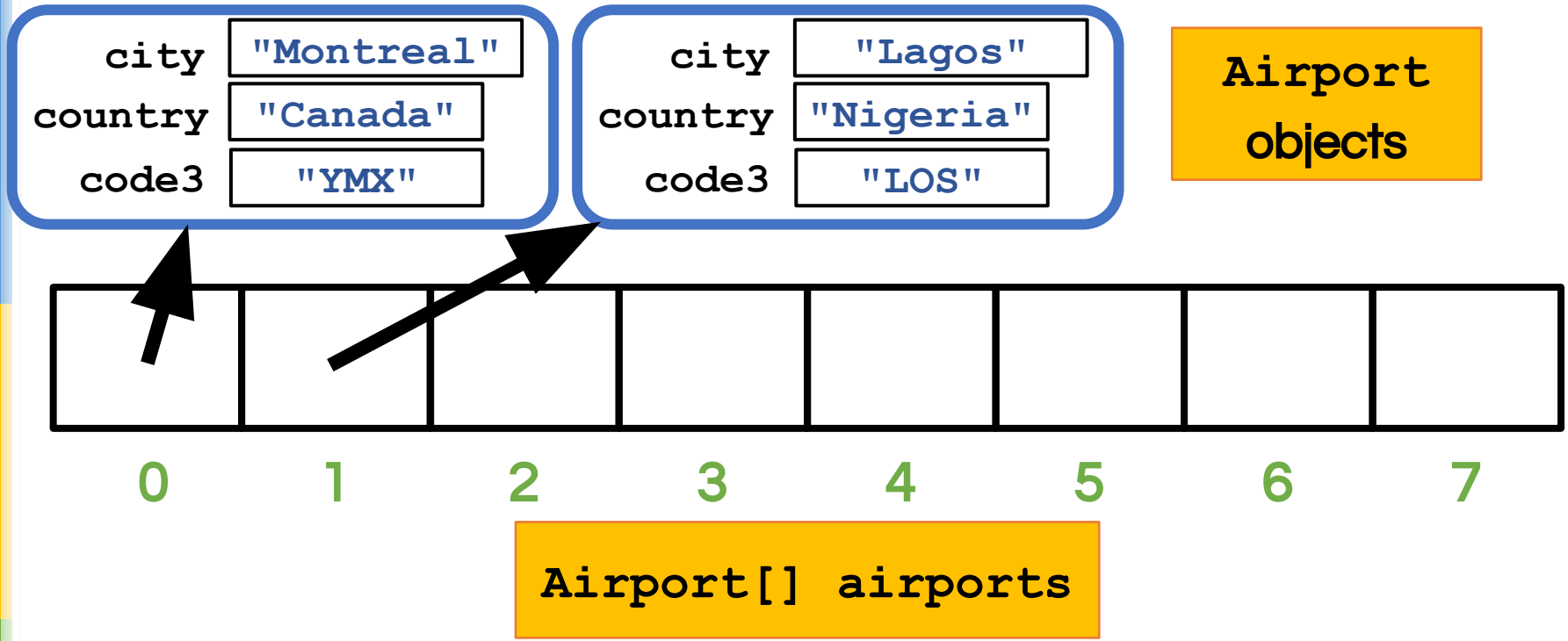
| ID | Airport name | City | Country | Code |
|---|---|---|---|---|

```
507,   "Heathrow",   "London",   "United Kingdom",   "LHR", ...

26,"Kugaaruk",   "Pelly Bay", "Canada",          "YBB", ...
3127,  "Pokhara",       "Pokhara", "Nepal",           "PKR", ...
```

**6977 Airports in `airports.dat`**

http://openflights.org/data.html

```
public class Airport
{
    private String city;
    private String country;
    private String code3;
    ...

    public String getCity() { return this.city; }
    public String getCountry() { return this.country; }
    public String getCode() { return this.code3; }
    ...
}
```


city "Montreal"
country "Canada"
code3 "YMX"
city "Lagos"
country "Nigeria"
code3 "LOS"
Airport objects
0
1
2
3
4
5
6
7
Airport[] airports

Montreal
Canada
YMX
Lagos
Nigeria
LOS
Essen
Germany
ESS
Chicago
USA
ORD
Beijing
China
PEK
Sydney
Australia
SYD
Quito
Ecuador
UIO
Agra
India
AGR
0
1
2
3
4
5
6
7
Airport[] airports

# Find Beijing: Linear Search

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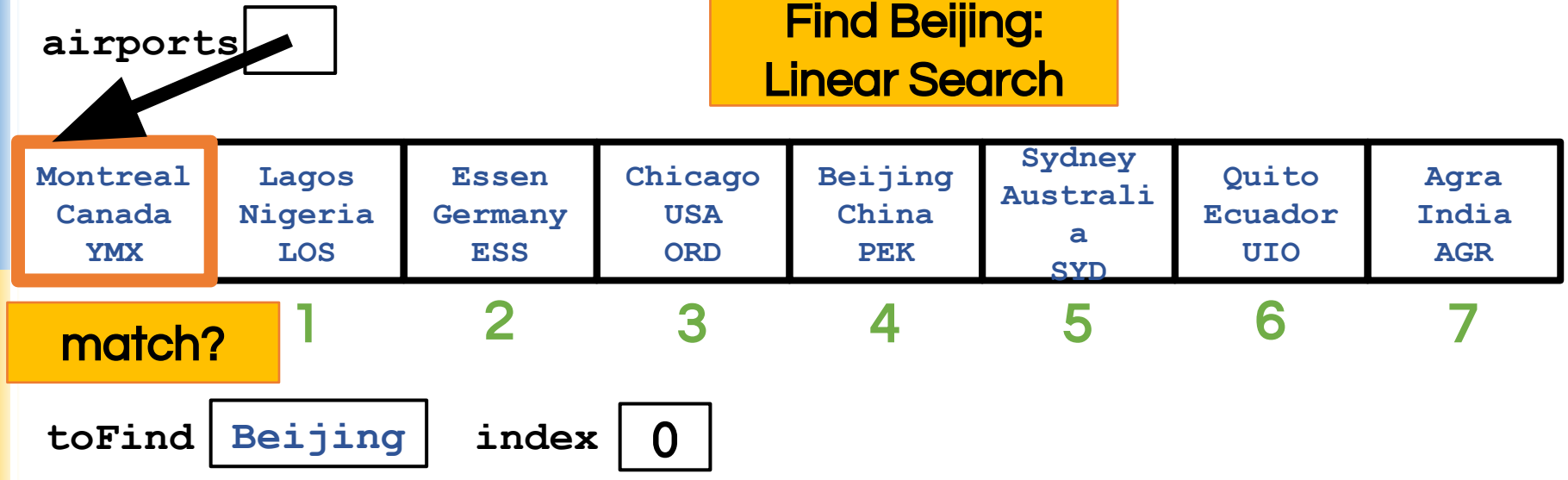
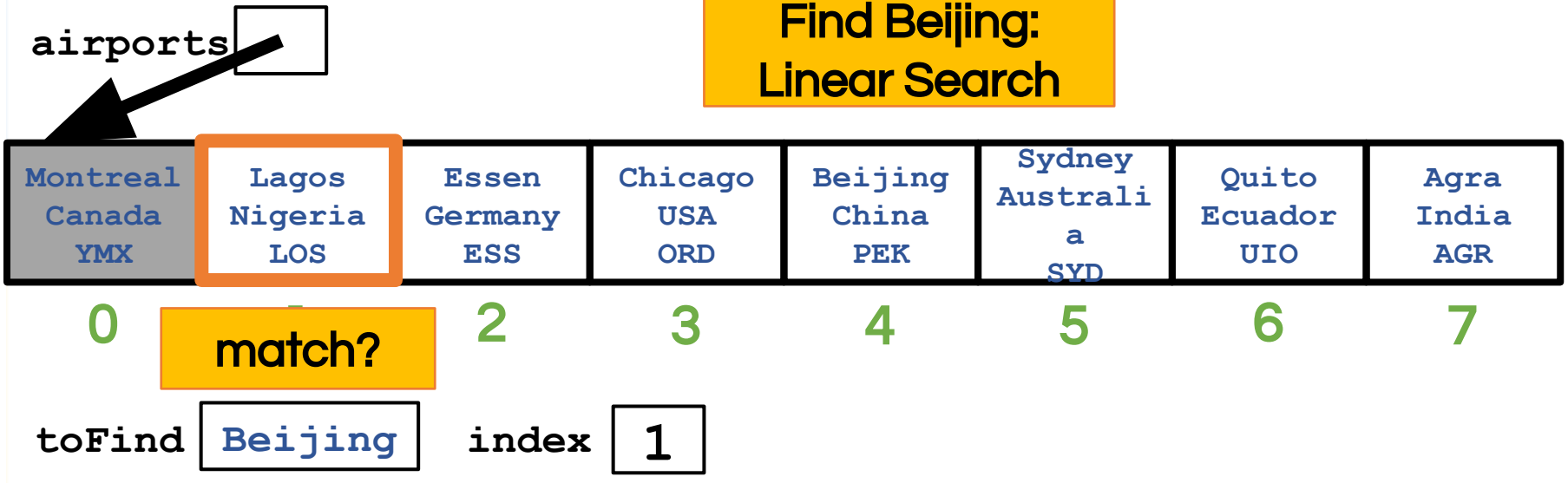
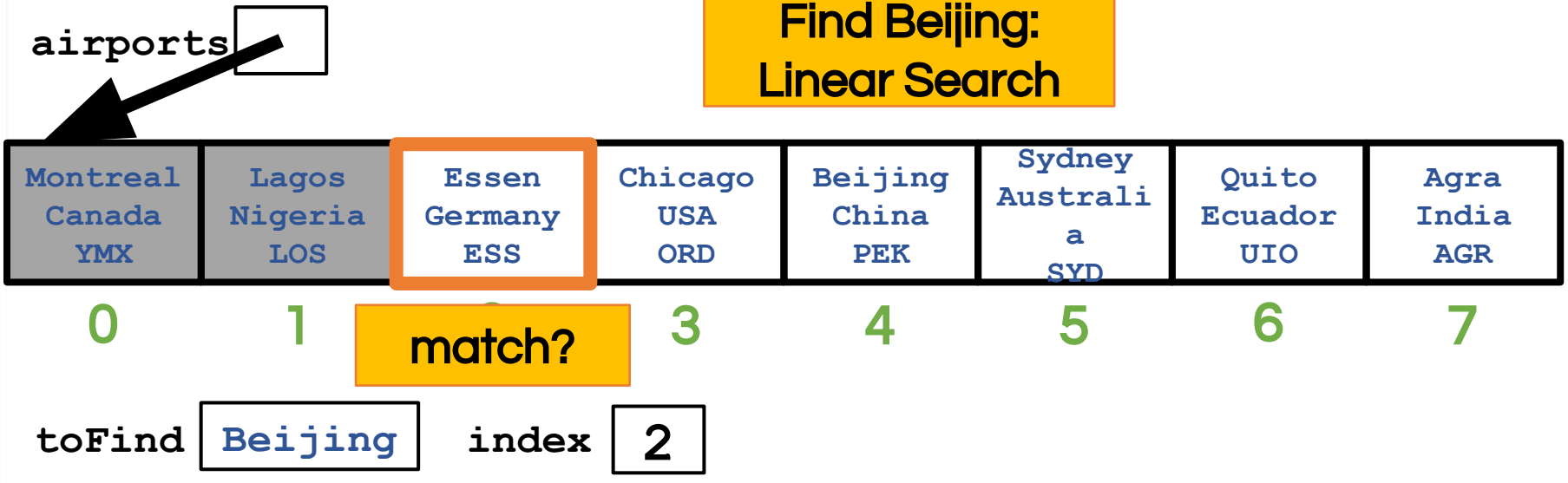
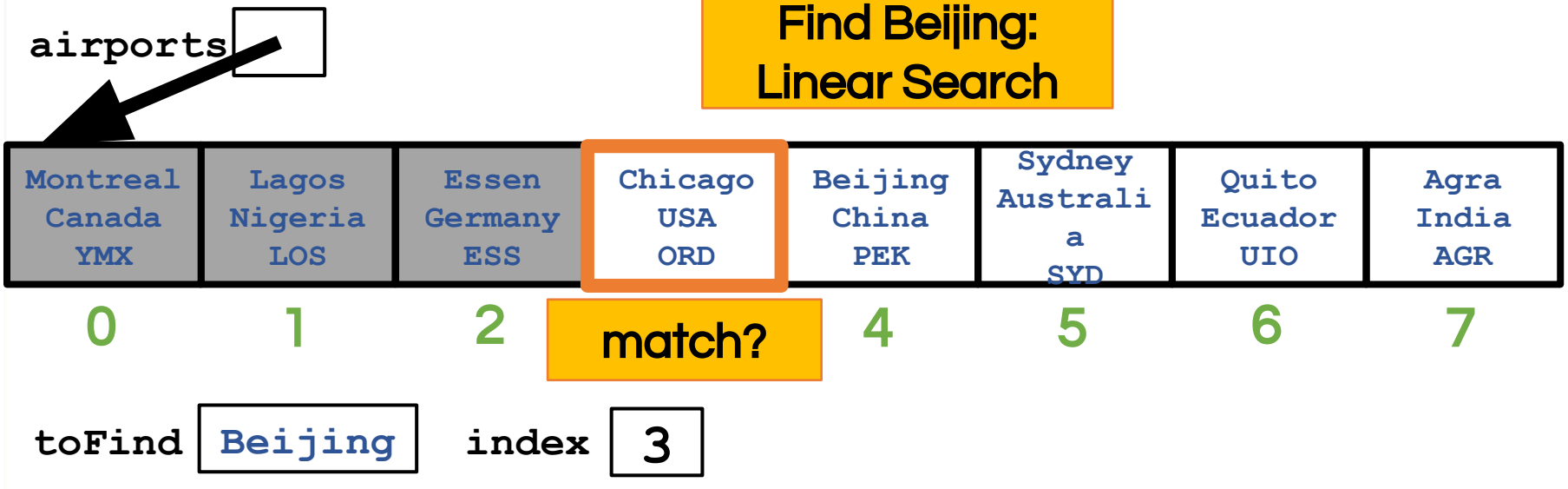


# Find Beijing: Linear Search



# Find Beijing: Linear Search




airports
Find Beijing:
Linear Search
Montreal
Canada
YMX
Lagos
Nigeria
LOS
Essen
Germany
ESS
Chicago
USA
ORD
Beijing
China
PEK
Sydney
Australia
SYD
Quito
Ecuador
UIO
Agra
India
AGR
0
1
2
match?
4
5
6
7
toFind
Beijing
index
3

# Find Beijing: Linear Search

toFind `Beijing` index `4` match!

## LinearSearch: Basic Algorithm

Start at the first index in the array
while index is less than the length of the array:
    if the city to find equals the city at the current index,
        return the airport code
    increment index by 1
return a value to indicate the airport was not found

```
// toFind is a city name
public static String findAirportCode(String toFind,
                                     Airport[] airports)
{
```

Airport:
getCity()
getCode()