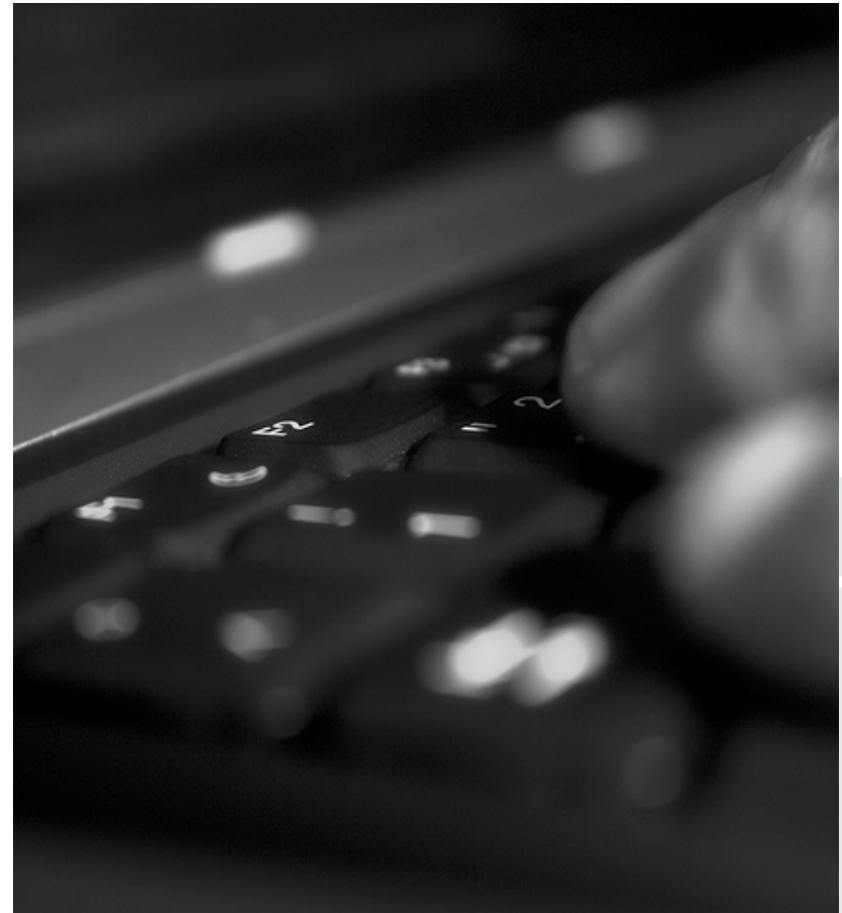


Exercise 5
Business Informatics 2 (PWIN)

Markup Languages, Databases &
Data-oriented Modelling
WS 2011/2012

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Jenser (Flickr.com)

- Exercise 1: Repetition XML (Mentorium)
- Exercise 2: Well-formed XML Documents
- Exercise 3: Validated XML Documents
- Exercise 4: ER-Model

- Write a DTD for the storage of a dynamic customer profile based on the Myplace example. Furthermore write an example XML document which is based on this DTD.
- The customer profile shall include a user's pseudonym, login time, current location, personal data (age, gender, interests). Possible interests are cinema, restaurant, tennis, soccer, sports bar... .
- ***Example for XML Document:***
 - Pseudonym: mobileFritz1380, Age: 25, gender: male
 - Interests: Cinema, Restaurants

DTD:

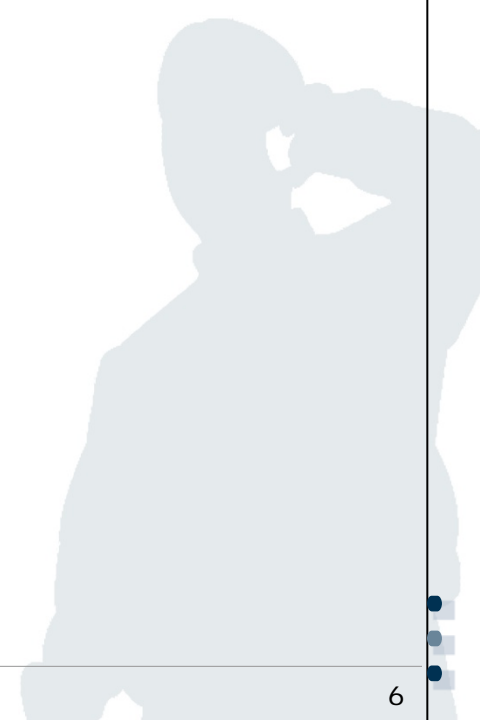
```
<!ELEMENT user_profile (pseudonym, login_time, current_location, personal_data)>
<!ELEMENT pseudonym(#PCDATA)>
<!ELEMENT login_time(#PCDATA)>
<!ELEMENT current_location(#PCDATA)>
<!ELEMENT personal_data (age, gender, interests)>
<!ELEMENT age(#PCDATA)>
<!ELEMENT gender(#PCDATA)>
<!ELEMENT interests(#PCDATA)*>
```

XML-Dokument:

```
<?xml version="1.0" encoding = "ISO-8859-1" ?>
<user_profile>
  <personal_data>
    <age> 25 </age>
    <gender>male</gender>
    <interests> Cinema</interests>
    <interests> Restaurants</interests>
  </personal_data>
  <login_time>21.06.2010</login_time>
  <current_location>Universität</current_location>
  <pseudonym> mobiler fritz 1380 </pseudonym>
</user_profile>
```

- Exercise 1: Repetition XML (Mentorium)
- Exercise 2: Well-formed XML Documents
- Exercise 3: Validated XML Documents
- Exercise 4: ER-Model

- Which of the following XML Documents are well-formed (two XML Documents per page)?



```
<?xml version="1.0"?>
<User>
  <Pseudonym>
    Jenny23
  </Pseudonym>
  <Mobile_Operator>
    t-mobile
  </ Mobile_Operator >
  <Registration>
    03.02.2007
  </Registration>
  <Lastlogin>
    29.04.2007
  </Lastlogin>
</User>
```

```
<?xml version="1.0"?>
<User>
  <Pseudonym>
    Joe1976
  </Pseudonym>
  < Mobile_Operator >
    vodafone
  </ Mobile_Operator >
  < Registration >
    03.02.2007
  < Lastlogin >
    29.04.2007
  </User>
```

```
<?xml version="1.0"?>
```

```
<User>
```

```
  <Pseudonym>
```

```
    Jenny23
```

```
  </Pseudonym>
```

```
  <Mobile_Operator>
```

```
    t-mobile
```

```
  </ Mobile_Operator >
```

```
  <Registration>
```

```
    03.02.2007
```

```
  </Registration>
```

```
  <Lastlogin>
```

```
    29.04.2007
```

```
  </Lastlogin>
```

```
</User>
```



```
<?xml version="1.0"?>
```

```
<User>
```

```
  <Pseudonym>
```

```
    Joe1976
```

```
  </Pseudonym>
```

```
  < Mobile_Operator >
```

```
    vodafone
```

```
  </ Mobile_Operator >
```

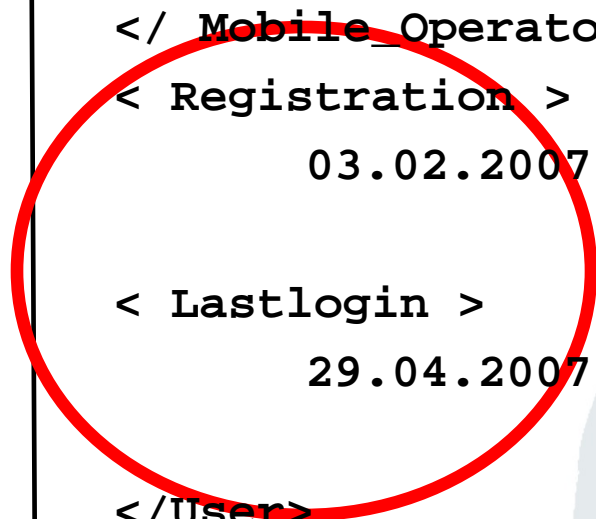
```
  < Registration >
```

```
    03.02.2007
```

```
  < Lastlogin >
```

```
    29.04.2007
```

```
</User>
```



```

<?xml version="1.0"?>
<Date>
<Place>
    Fressgass 17, Frankfurt
</ Place >
<Time>
    25.03.2007, 21:15-0:15
</Time>
<Meeting_Point>
    Starbucks
<People>
    Gina
</Meeting_Point>
</People>
<People>
    Jimmy
</People>
<Activitiy>
    Cocktails
</Activitiy>
<Comment>
    Gina 2 Caipis ausgegeben
</Comment>
</Date>

```

```

<?xml version="1.0"?>
<Date>
<Place>
    Schweizer Strasse, Frankfurt
</Place>
<Time>
    25.03.2007, 21:15-0:15
</Time>
<Meeting_Point>
    Apfelwein-Wagner
</Meeting_Point>
<People>
    Pit
</People>
<People>
    Jenny23
</People>
<Activitiy>
    Äppler trinken
</Activitiy>
<Comment>
    Pit hatte coole Sonnenbrille an!
</Comment>
</Date>

```

```

<?xml version="1.0"?>
<Date>
<Place>
    Fressgass 17, Frankfurt
</ Place >
<Time>
    25.03.2007, 21:15-0:15
</Time>
<Meeting_Point>
    Starbucks
<People>
    Gina
</Meeting_Point>
</People>
<People>
    Jimmy
</People>
<Activitiy>
    Cocktails
</Activitiy>
<Comment>
    Gina 2 Caipis ausgegeben
</Comment>
</Date>

```

```

<?xml version="1.0"?>
<Date>
<Place>
    Schweizer Strasse, Frankfurt
</Place>
<Time>
    25.03.2007, 21:15-0:15
</Time>
<Meeting_Point>
    Apfelwein-Wagner
</Meeting_Point>
<People>
    Pit
</People>
<People>
    Jenny23
</People>
<Activitiy>
    Äppler trinken
</Activitiy>
<Comment>
    Pit hatte coole Sonnenbrille an!
</Comment>
</Date>

```



- Exercise 1: Repetition XML (Mentorium)
- Exercise 2: Well-formed XML Documents
- Exercise 3: Validated XML Documents
- Exercise 4: ER-Model

- InstantONS[®] has bought a competitor and wants to integrate his data into its own database. Unfortunately the data is structured differently.
- Validate the following XML document extracted from the competitors database against the DTD of InstantONS[®]. If there are mismatches, adapt the DTD so the new data can be integrated without losses.

```
<Date>
  ... (gekürzt)
<People>
  Jenny23
</People>
<Activity>
  Äppler trinken
</Activity>
<Success>
  <Compliment>ja</Compliment>
  <Invitation>nein</Invitation>
  <Newdate>nein</Newdate>
</Success>
<Comment>
  Pit hatte coole
  Sonnenbrille an!
</Comment>
```

```
<?xml version="1.0"?>

<!DOCTYPE Date [
<!ELEMENT Date
(Place,Time,Meeting_Point,People+,
Activity,Comment)>

<!ELEMENT Place      (#PCDATA)>
<!ELEMENT Time      (#PCDATA)>
<!ELEMENT Meeting_Point (#PCDATA)>
<!ELEMENT People    (#PCDATA)>
<!ELEMENT Activity  (#PCDATA)>
<!ELEMENT Comment  (#PCDATA)>
]>
```

```

<Date>
  ... (gekürzt)
<People>
  Jenny23
</People>
<Activity>
  Äppler trinken
</Activity>
<Success>
  <Compliment>ja</Compliment>
  <Invitation>nein</Invitation>
  <Newdate>nein</Newdate>
</Success>
<Comment>
  Pit hatte coole
  Sonnenbrille an!
</Comment>

```

```

<?xml version="1.0"?>
<!DOCTYPE Date
[
<!ELEMENT Date
(Place,Time,Meeting_Point,People+,
Activity,Success?,Comment
)>
<!ELEMENT Place      (#PCDATA)>
<!ELEMENT Time      (#PCDATA)>
<!ELEMENT Meeting_Point (#PCDATA)>
<!ELEMENT People    (#PCDATA)>
<!ELEMENT Activity   (#PCDATA)>
<!ELEMENT Success
(Compliment?, Invitation?,
Newdate?)
>
<!ELEMENT Compliment (#PCDATA)>
<!ELEMENT Invitation (#PCDATA)>
<!ELEMENT Newdate   (#PCDATA)>
<!ELEMENT Comment   (#PCDATA)>
]>

```

- Element-Content:

EMPTY	Empty element
ANY	Any content
	Selection list
,	Sequence
()	Grouping
(#PCDATA)	<i>Parsed Character Data</i> (mixed data)

- Cardinalities:

	empty: exactly one value is necessary
+	At least one value
?	None or one value
*	None or multiple values



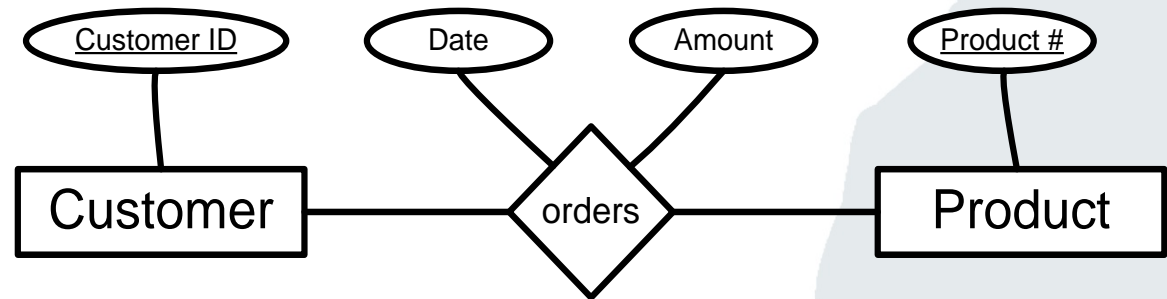
- Exercise 1: Repetition XML (Mentorium)
- Exercise 2: Well-formed XML Documents
- Exercise 3: Validated XML Documents
- Exercise 4: ER-Model

- Create an ER-Model of the InstantONS[®] system with the help of the following information:
 - Use the following entities for your model:
 - User
 - InstantONS
 - Date (when, where, who, how often ...),
 - Event (cinema, restaurant, ...)
 - Eigenschaft (User profile, e.g. age)
 - Meeting Point (Location for the date)
 - Identify and mark the primary key for each entity and avoid as far as possible artificial keys (e.g. ID).
 - Define the Cardinalities, using the 1:n notation.
 - Make explicitly use of weak entities.

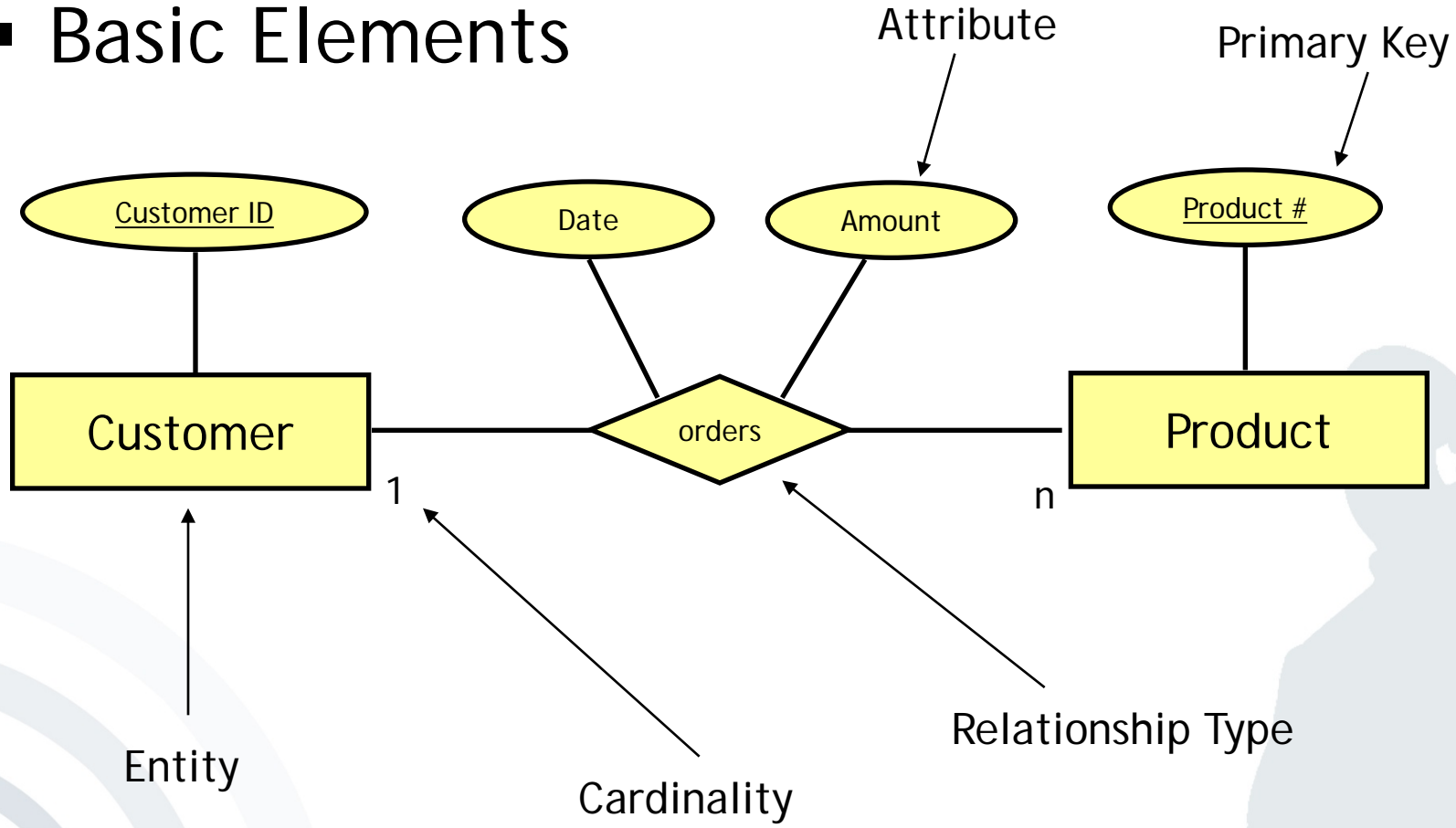
- Modelling of the problem statement from functional perspective
- Abstraction from technical aspects and implementations
- Different modelling concepts (e.g. ERM, SERM, ...) available



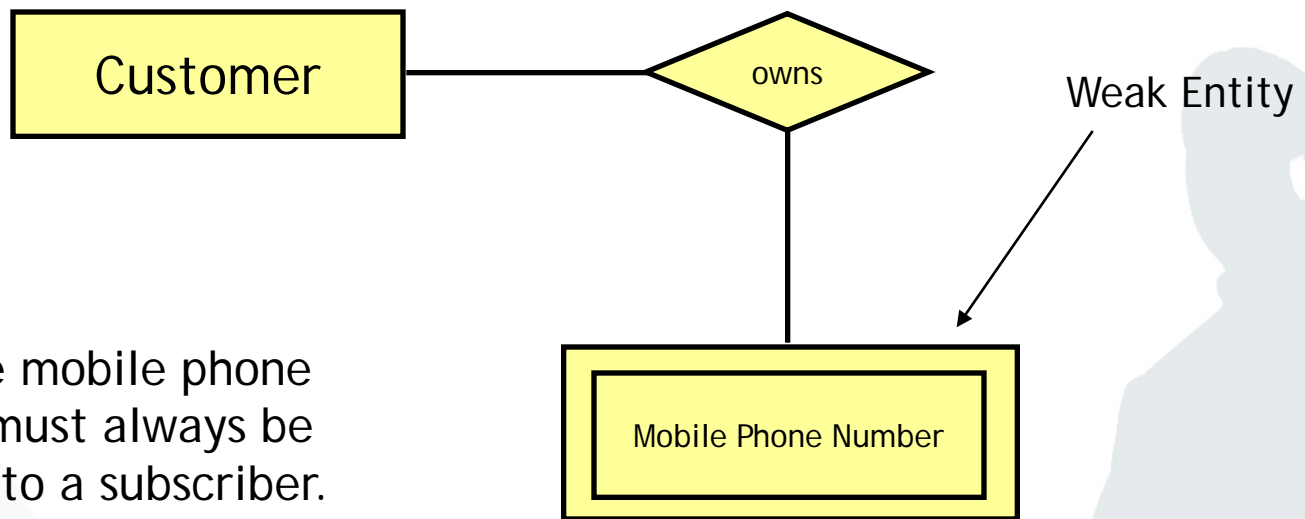
Customer orders a product.



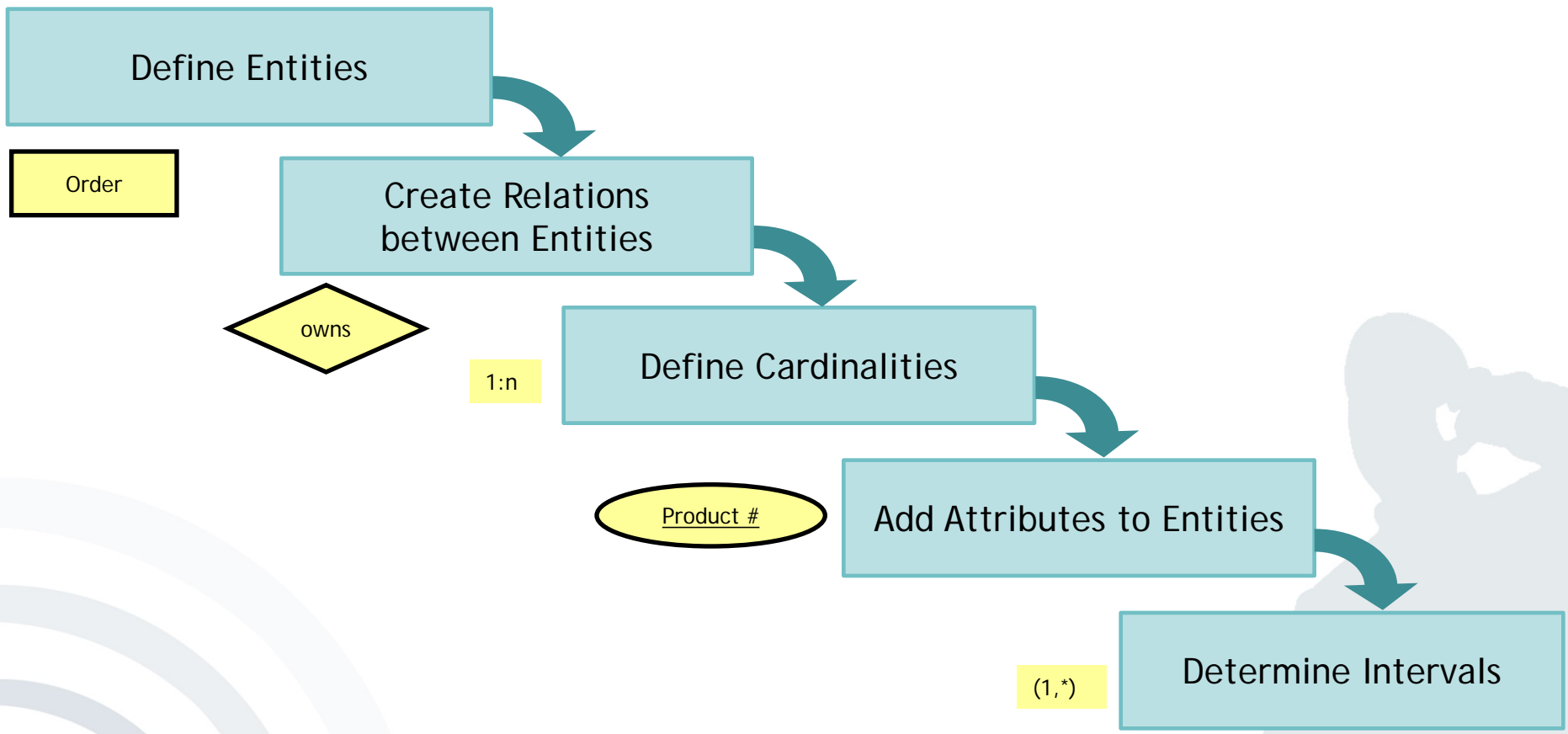
Basic Elements



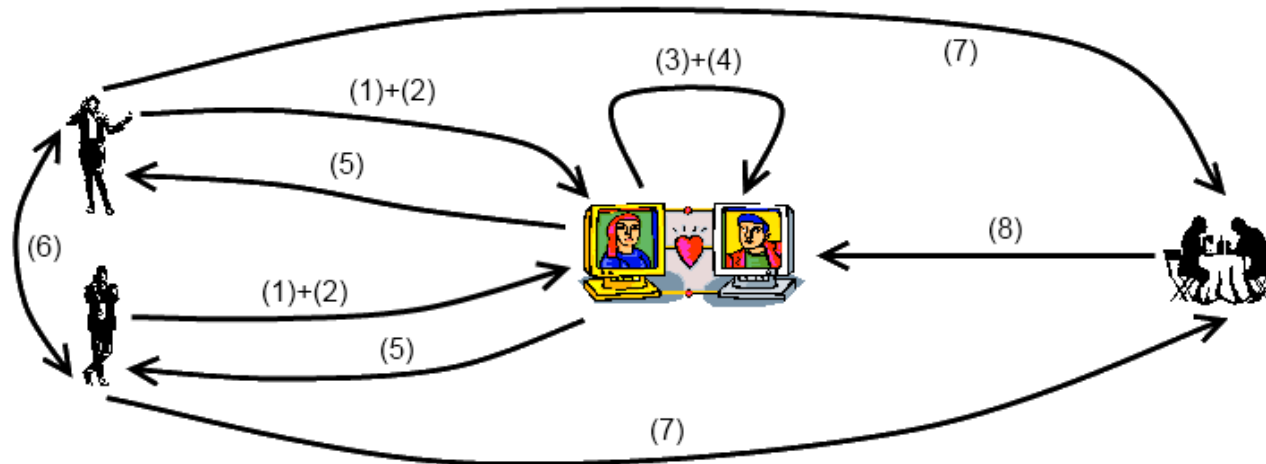
Weak entities depend at least on one entity and consequently cannot exist without them.



An active mobile phone number must always be assigned to a subscriber.



■ InstantONS[®] System



1. Users register at InstantONS[®]. Thereby, they receive their pseudonyms and submit their personal profile information. Subsequently, InstantONS[®] attempts to certify the profile attributes of the users.
2. In order to start searching for a date, users have to activate the InstantONS[®] app on their mobile device.
3. InstantONS[®] attempts to find other InstantONS[®] users in close proximity who are also currently looking for a date.
4. InstantONS[®] matches the personal profiles of the corresponding users by presenting them with a list of matching pseudonyms.
5. InstantONS[®] enables matching users to communicate with each other using text messages, chat or voice.
6. If users want to arrange a meeting, InstantONS[®] suggests a list of appropriate meeting points based on the personal interests of the corresponding users as well as their current geographic location. Then, InstantONS[®] navigates the users to their meeting point.
7. After the date, the users can rate their files of all users in close proximity with each other.
8. If there is a match, InstantONS[®] date on the InstantONS[®] app. This rating is used to improve their next date matching process.

- Define entities

User

InstantONS

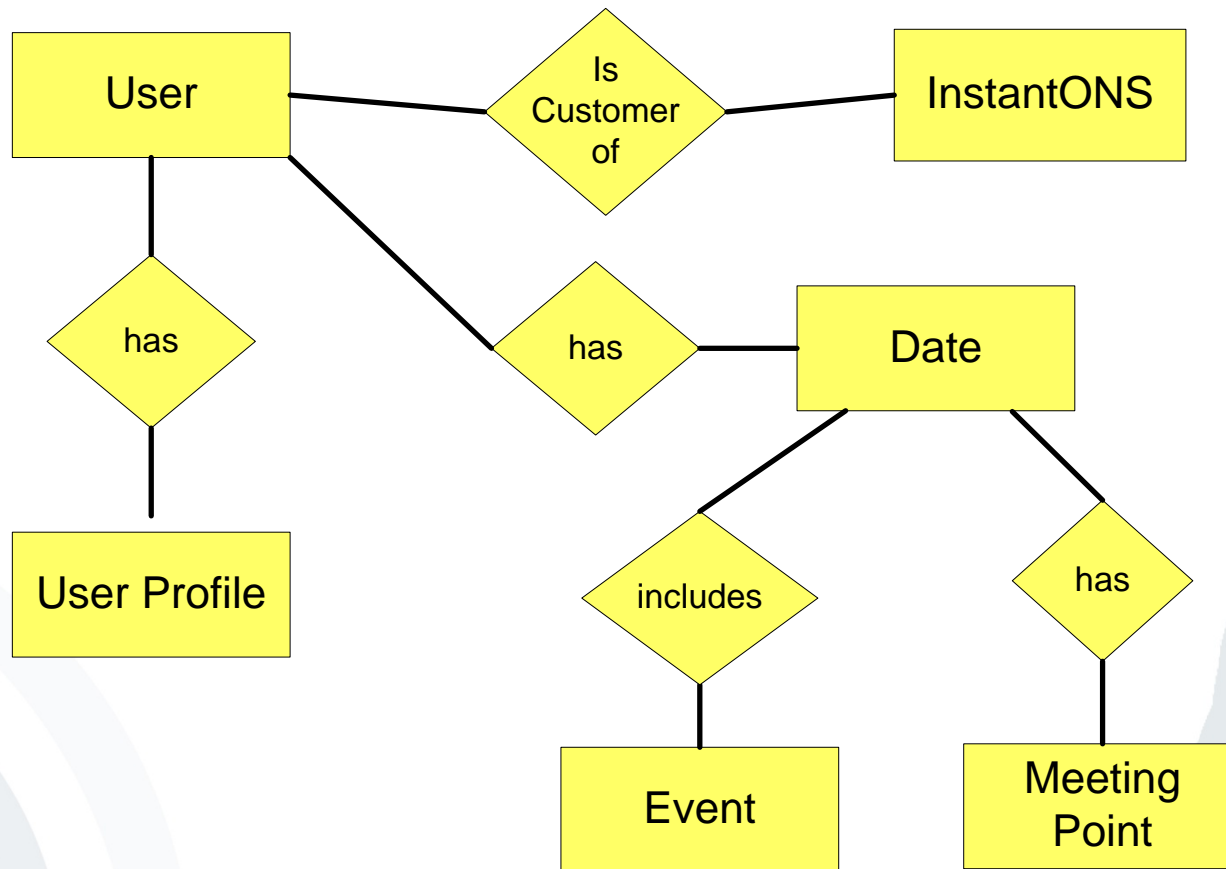
User Profile

Date

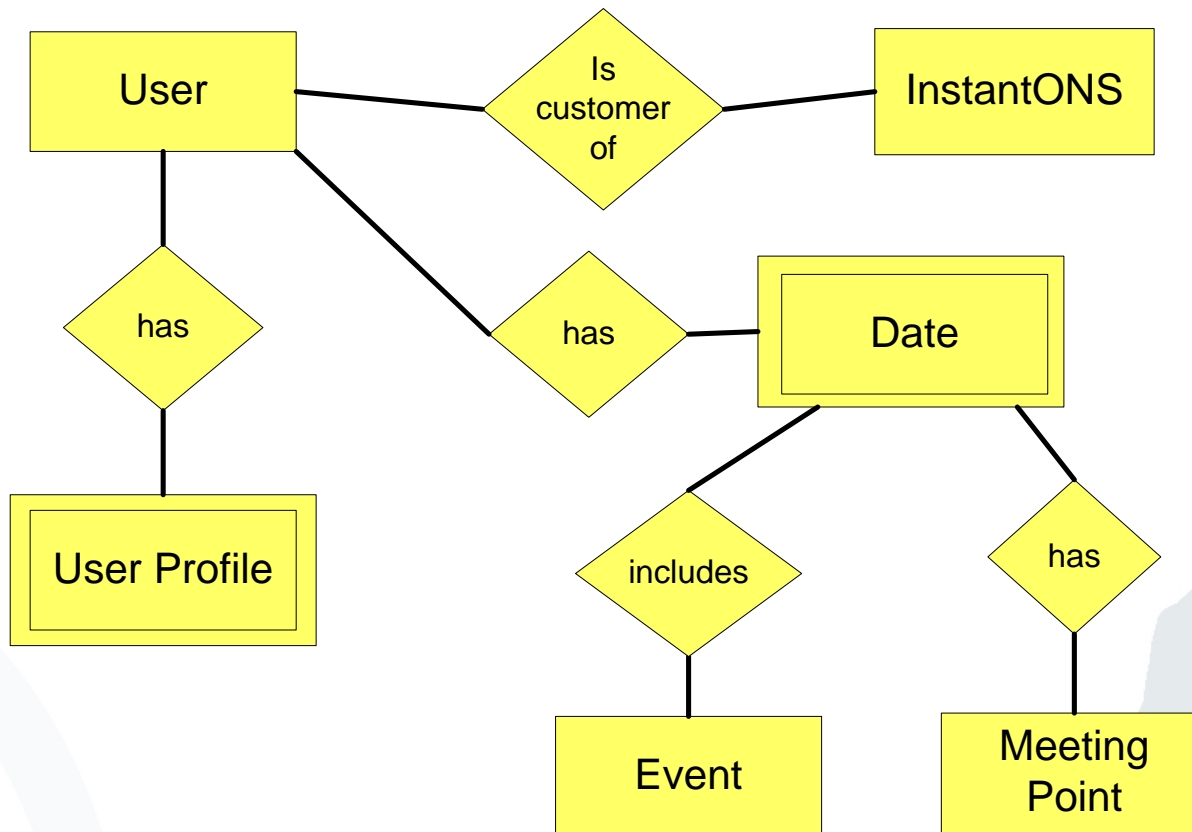
Event

Meeting
Point

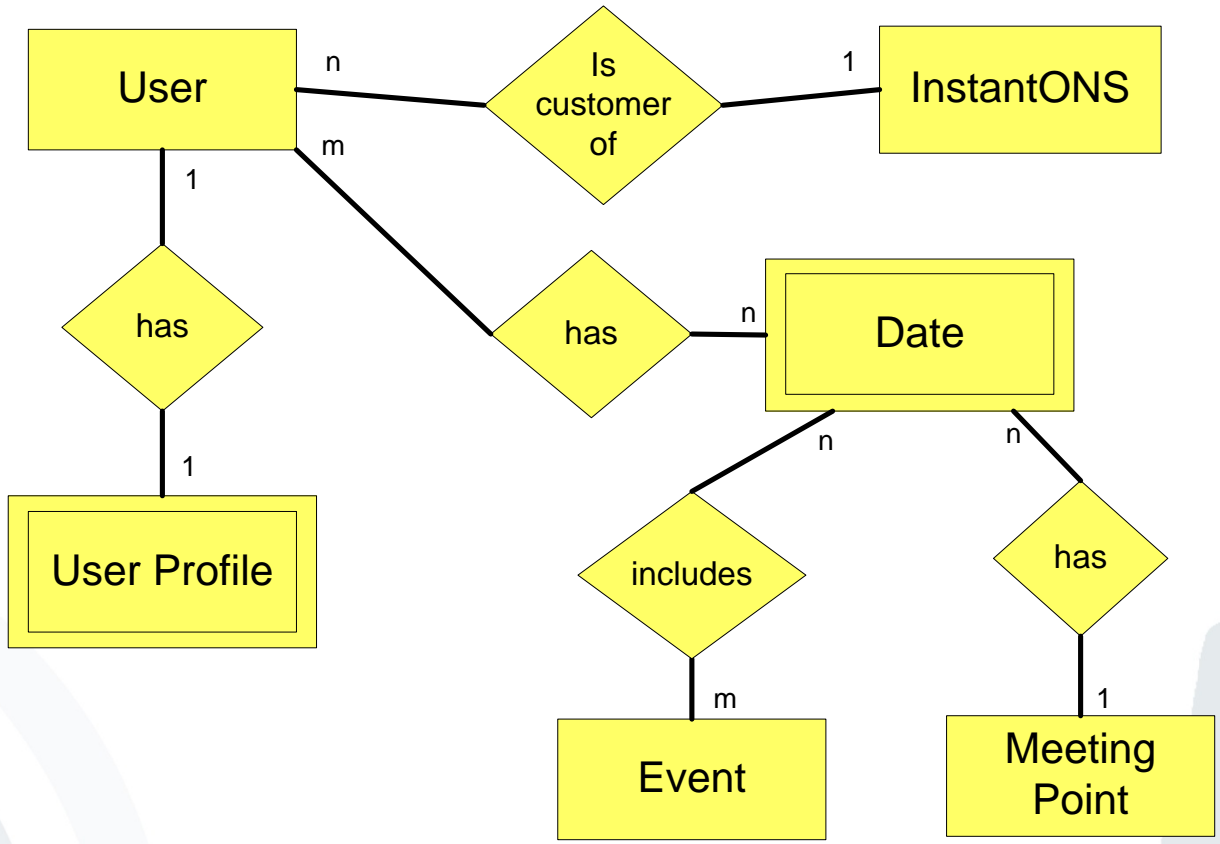
- Define relationships between the entities



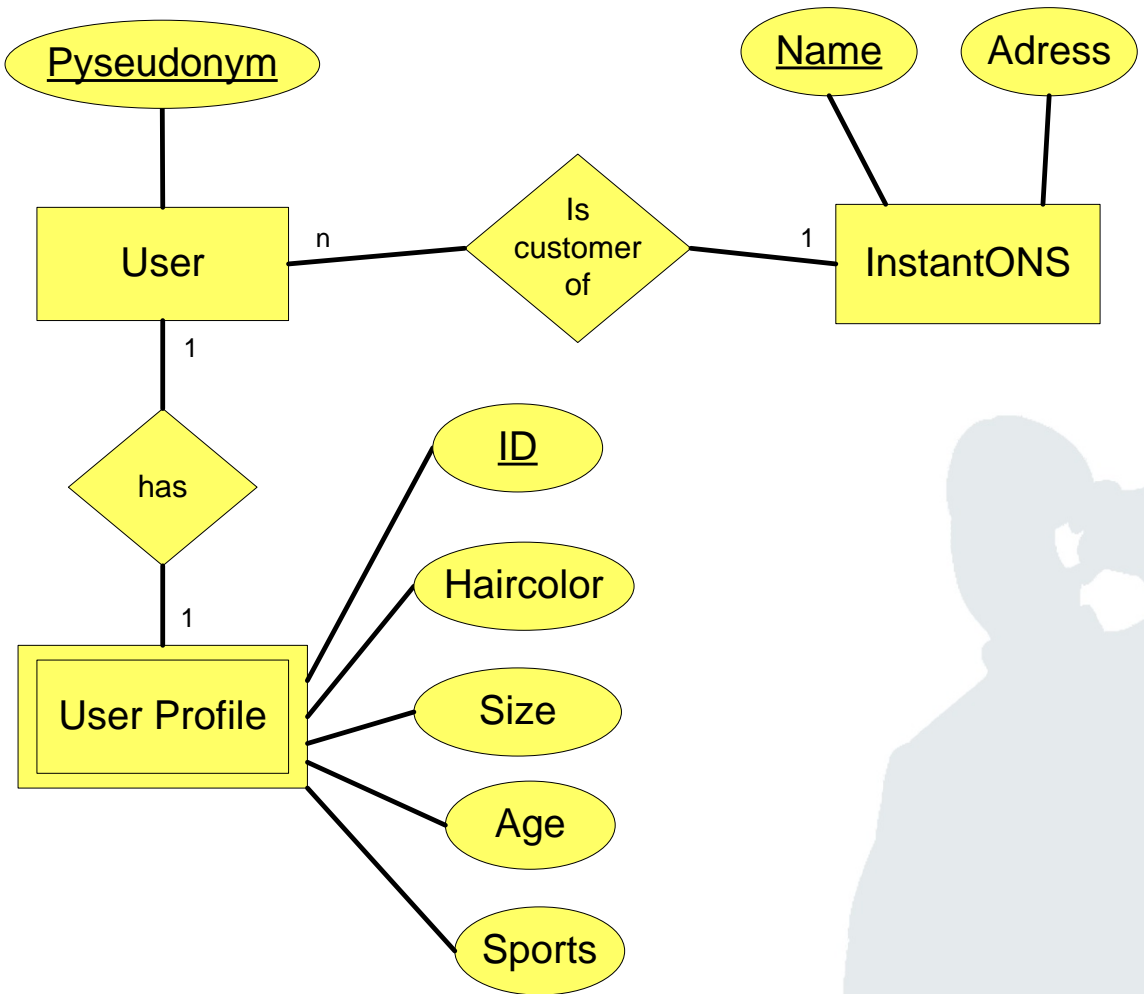
- Define weak entities



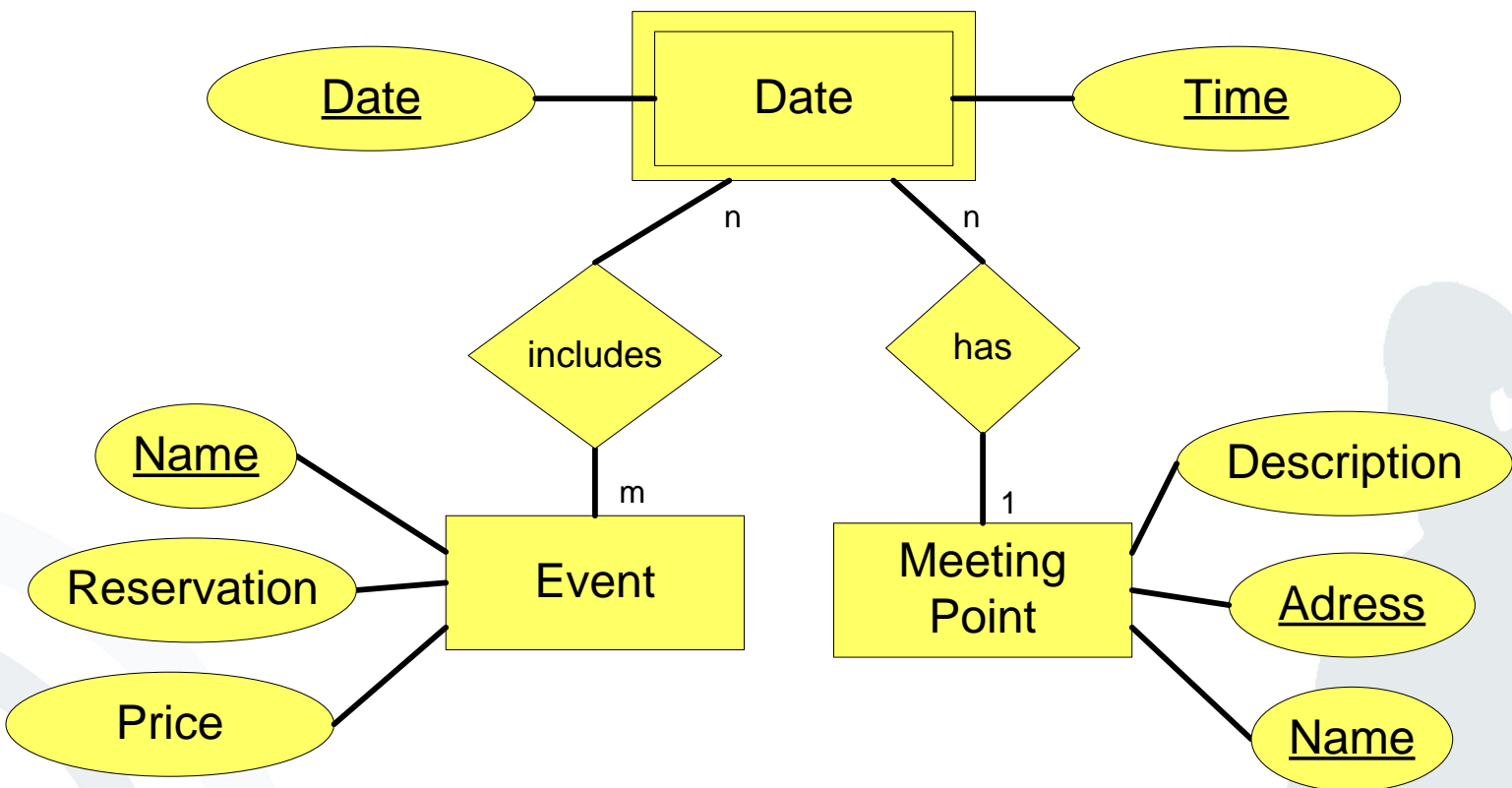
Define Cardinalities



- Define attributes



- Define attributes



Open Questions?

