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Oracle Quiz #2

www.pgrocer.net/Cis50/quiz2F13.html

Oracle Quiz #2

Problem #1: Show the results of the query below and explain your answer.
Data in the table bldgofc:

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

K112
K115
H114

The answers are here, but please try them first and then look at the answers - the goal here is to figure out how things work.
Also, you need to explain your answers!

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;

Data in the table donor:


IDNO  NAME            STADR           CITY       ST ZIP   DATEFST      YRGOAL CONTACT
----- --------------- --------------- ---------- -- ----- --------- --------- ----------
11111 Stephen Daniels 123 Elm St      Seekonk    MA 02345 03-JUL-98       500 John Smith
12121 Jennifer Ames   24 Benefit St   Providence RI 02045 24-MAY-97       400 Susan Jones
22222 Carl Hersey     24 Benefit St   Providence RI 02045 03-JAN-98           Susan Jones
23456 Susan Ash       21 Main St      Fall River MA 02720 04-MAR-92       100 Amy Costa
33333 Nancy Taylor    26 Oak St       Fall River MA 02720 04-MAR-92        50 John Adams
34567 Robert Brooks   36 Pine St      Fall River MA 02720 04-APR-98        50 Amy Costa
```

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
```

Type here to search

9:56 AM
9/17/2019

Title: Sep 17-9:56 AM (1 of 16)

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Oracle Quiz #2

www.pgrocer.net/Cis50/quiz2F13.html

Oracle Quiz #2

Problem #1: Show the results of the query below and explain your answer.
Data in the table bldgofc:

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

K112
K115
H114

substr(fld,start,howmany)

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

start loc#+1

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;
```

how many

112
115
114

```
Data in the table donor:

IDNO  NAME            STADR           CITY       ST ZIP   DATEFST      YRGOAL CONTACT
----- --------------- --------------- ---------- -- ----- --------- --------- -----------
11111 Stephen Daniels 123 Elm St      Seekonk    MA 02345 03-JUL-98       500 John Smith
12121 Jennifer Ames   24 Benefit St   Providence RI 02045 24-MAY-97       400 Susan Jones
22222 Carl Hersey     24 Benefit St   Providence RI 02045 03-JAN-98           Susan Jones
23456 Susan Ash       21 Main St      Fall River MA 02720 04-MAR-92       100 Amy Costa
33333 Nancy Taylor    26 Oak St       Fall River MA 02720 04-MAR-92        50 John Adams
34567 Robert Brooks   36 Pine St      Fall River MA 02720 04-APR-98        50 Amy Costa
```

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
```

Type here to search

10:01 AM
9/17/2019

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Oracle Quiz #2

www.pgrocer.net/Cis50/quiz2F13.html

Oracle Quiz #2

Problem #1: Show the results of the query below and explain your answer.
Data in the table bldgofc:

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

K112
K115
H114

substr(fld,start,howmany)

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;
```

start loc#+1

how many

112
115
114

```
Data in the table donor:

IDNO  NAME            STADR           CITY       ST ZIP   DATEFST      YRGOAL CONTACT
----- --------------- --------------- ---------- -- ----- --------- --------- -----------
11111 Stephen Daniels 123 Elm St      Seekonk    MA 02345 03-JUL-98       500 John Smith
12121 Jennifer Ames   24 Benefit St   Providence RI 02045 24-MAY-97       400 Susan Jones
22222 Carl Hersey     24 Benefit St   Providence RI 02045 03-JAN-98           Susan Jones
23456 Susan Ash       21 Main St      Fall River MA 02720 04-MAR-92       100 Amy Costa
33333 Nancy Taylor    26 Oak St       Fall River MA 02720 04-MAR-92        50 John Adams
34567 Robert Brooks   36 Pine St      Fall River MA 02720 04-APR-98        50 Amy Costa
```

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

fld

```
SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

start

how many

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
```

Type here to search

10:04 AM
9/17/2019

Title: Sep 17-10:04 AM (3 of 16)

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Oracle Quiz #2

www.pgrocer.net/Cis50/quiz2F13.html

Oracle Quiz #2

Problem #1: Show the results of the query below and explain your answer.
Data in the table bldgofc:

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;

Data in the table donor:


IDNO  NAME            STADR           CITY       ST ZIP   DATEFST      YRGOAL CONTACT
----- --------------- --------------- ---------- -- ----- --------- --------- ----------
11111 Stephen Daniels 123 Elm St      Seekonk    MA 02345 03-JUL-98       500 John Smith
12121 Jennifer Ames   24 Benefit St   Providence RI 02045 24-MAY-97       400 Susan Jones
22222 Carl Hersey     24 Benefit St   Providence RI 02045 03-JAN-98           Susan Jones
23456 Susan Ash       21 Main St      Fall River MA 02720 04-MAR-92       100 Amy Costa
33333 Nancy Taylor    26 Oak St       Fall River MA 02720 04-MAR-92        50 John Adams
34567 Robert Brooks   36 Pine St      Fall River MA 02720 04-APR-98        50 Amy Costa
```

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

3

```
SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

3rd

n

hnΔSm

$$\begin{array}{r} 71 \\ 7\overline{)500} \\ 49 \\ \hline 10 \\ 7 \\ \hline 3 \end{array}$$

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
```

Type here to search

10:08 AM
9/17/2019

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Oracle Quiz #2

www.pgrocer.net/Cis50/quiz2F13.html

Oracle Quiz #2

Problem #1: Show the results of the query below and explain your answer.
Data in the table bldgofc:

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;

Data in the table donor:


IDNO  NAME            STADR           CITY       ST ZIP   DATEFST      YRGOAL CONTACT
----- --------------- --------------- ---------- -- ----- --------- --------- ------------
11111 Stephen Daniels 123 Elm St      Seekonk    MA 02345 03-JUL-98       500 John Smith
12121 Jennifer Ames   24 Benefit St   Providence RI 02045 24-MAY-97       400 Susan Jones
22222 Carl Hersey     24 Benefit St   Providence RI 02045 03-JAN-98           Susan Jones
23456 Susan Ash       21 Main St      Fall River MA 02720 04-MAR-92       100 Amy Costa
33333 Nancy Taylor    26 Oak St       Fall River MA 02720 04-MAR-92        50 John Adams
34567 Robert Brooks   36 Pine St      Fall River MA 02720 04-APR-98        50 Amy Costa
```

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

3

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
```

3rd

n

hnΔSm

71
7 | 500
49
10
7
3

57
7 | 400
35
50
49
1

Type here to search

10:11 AM
9/17/2019

File Edit View History Bookmarks Tools Help

SMART Ink

Oracle Quiz #2

www.pgrocer.net/Cis50/quiz2F13.html

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;
```

Data in the table donor:

IDNO	NAME	STADR	CITY	ST	ZIP	DATEFST	YRGOAL	CONTACT
11111	Stephen Daniels	123 Elm St	Seekonk	MA	02345	03-JUL-98	500	John Smith
12121	Jennifer Ames	24 Benefit St	Providence	RI	02045	24-MAY-97	400	Susan Jones
22222	Carl Hersey	24 Benefit St	Providence	RI	02045	03-JAN-98		Susan Jones
23456	Susan Ash	21 Main St	Fall River	MA	02720	04-MAR-92	100	Amy Costa
33333	Nancy Taylor	26 Oak St	Fall River	MA	02720	04-MAR-92	50	John Adams
34567	Robert Brooks	36 Pine St	Fall River	MA	02720	04-APR-98	50	Amy Costa

14
7) 100
7
30
28
2

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
  3  where datefst !='04-MAR-92'
  4  group by state
  5  having state = 'MA';
```

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10:13 AM
9/17/2019

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;
```

Data in the table donor:

```
IDNO  NAME            STADR           CITY       ST ZIP   DATEFST      YRGOAL CONTACT
----- --------------- --------------- ---------- -- ----- --------- --------- -----------
11111 Stephen Daniels 123 Elm St      Seekonk    MA 02345 03-JUL-98       500 John Smith
12121 Jennifer Ames   24 Benefit St   Providence RI 02045 24-MAY-97       400 Susan Jones
22222 Carl Hersey     24 Benefit St   Providence RI 02045 03-JAN-98           Susan Jones
23456 Susan Ash       21 Main St      Fall River MA 02720 04-MAR-92       100 Amy Costa
33333 Nancy Taylor    26 Oak St       Fall River MA 02720 04-MAR-92        50 John Adams
34567 Robert Brooks   36 Pine St      Fall River MA 02720 04-APR-98        50 Amy Costa
```

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

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SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
  3  where datefst !='04-MAR-92'
  4  group by state
  5  having state = 'MA';
```

Amy Costa 2
John Adams 1
John Smith 1
Susan Jones 2

Oracle Quiz #2

www.pgrocer.net/Cis50/quiz2F13.html

```
BLDG                 OFFICE
-------------------- ------
K Building           #112
K Bldg               115
H                    #114

SQL> SELECT SUBSTR(bldg,1,1)||SUBSTR(office,-3,3)
  2 FROM bldgofc;
```

Problem #2: Show the results of the query below and explain your answer.
Data in the table ofbl:

```
BLDGOFC
--------------------
Building K #112
#115 K
Office K#114

SQL>  SELECT SUBSTR(bldgofc,instr(bldgofc,'#')+1,3)
  2 FROM ofbl;
```

Data in the table donor:

```
IDNO  NAME            STADR           CITY       ST ZIP   DATEFST    YRGOAL CONTACT
----- --------------- --------------- ---------- -- ----- --------- --------- -----------
11111 Stephen Daniels 123 Elm St      Seekonk    MA 02345 03-JUL-98       500 John Smith
12121 Jennifer Ames   24 Benefit St   Providence RI 02045 24-MAY-97       400 Susan Jones
22222 Carl Hersey     24 Benefit St   Providence RI 02045 03-JAN-98           Susan Jones
23456 Susan Ash       21 Main St      Fall River MA 02720 04-MAR-92       100 Amy Costa
33333 Nancy Taylor    26 Oak St       Fall River MA 02720 04-MAR-92        50 John Adams
34567 Robert Brooks   36 Pine St      Fall River MA 02720 04-APR-98        50 Amy Costa
```

RI 2
MA 2

Problem #3: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> SELECT SUBSTR(contact,ROUND(MOD(yrgoal,7),0),5)
  2  FROM donor;
```

Problem #4: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select contact, count(*)
  2  from donor
  3  group by contact
  4  order by contact;
```

Problem #5: Show the results of the query below and explain your answer. Use the donor table.

```
SQL> select state, count(*)
  2  from donor
  3  where datefst !='04-MAR-92'
  4  group by state
  5  having state = 'MA';
```

Notes on Relational Databases:

www.pgrocer.net/Cis50/relation.html

Notes on Relational Databases:

A database can consist of multiple tables/files. These tables/files are related to each other in some way so that the programmer or developer can access information from multiple table/files at the same time. A database management system is the database and its functionality. In today's PC environment, the model of relating the table/files within a database is the relational database model. Things that must be considered in a relational database:

- Analyze the data and determine how to design the files - consider whether the data is in a one to one relationship, a one to many relationship or a many to many relationship.
- Consider functional dependence: An attribute B, is functionally depended on another attribute, A if a value for A determines a single value for B at any one time.
- The primary key has all attributes in the table functionally dependent upon it - to simplify you can think of the primary key as the minimum collection of fields that will get you one and only one record from the table/file.
- We must also consider the rules of normalization and establish the relationships so that the database is in third normal form.

- A relation is in **first normal form** if it does not contain repeating groups.

- A relation is in **second normal form** if it is in first normal form and no non-key attribute is dependent on only a portion of the primary key. (Note: an attribute is a non-key attribute if it is not a part of the primary key).

- A relation is in **third normal form** if it is in second normal form and if the only determinants it contains are candidate keys. (Note: any attribute that determines another attribute is called a determinant).

stuID
stuname
major
~~crs1~~
~~crs2~~
~~crs3~~
~~⋮~~
~~crs50~~

StuCrs

stuID
crs

Type here to search

10:25 AM
9/17/2019

Notes on Relational Databases:

A database can consist of multiple tables/files. These tables/files are related to each other in some way so that the programmer or developer can access information from multiple table/files at the same time. A database management system is the database and its functionality. In today's PC environment, the model of relating the table/files within a database is the relational database model. Things that must be considered in a relational database:

- Analyze the data and determine how to design the files - consider whether the data is in a one to one relationship, a one to many relationship or a many to many relationship.
- Consider functional dependence: An attribute B, is functionally depended on another attribute, A if a value for A determines a single value for B at any one time.
- The primary key has all attributes in the table functionally dependent upon it - to simplify you can think of the primary key as the minimum collection of fields that will get you one and only one record from the table/file.
- We must also consider the rules of normalization and establish the relationships so that the database is in third normal form.

- A relation is in **first normal form** if it does not contain repeating groups.

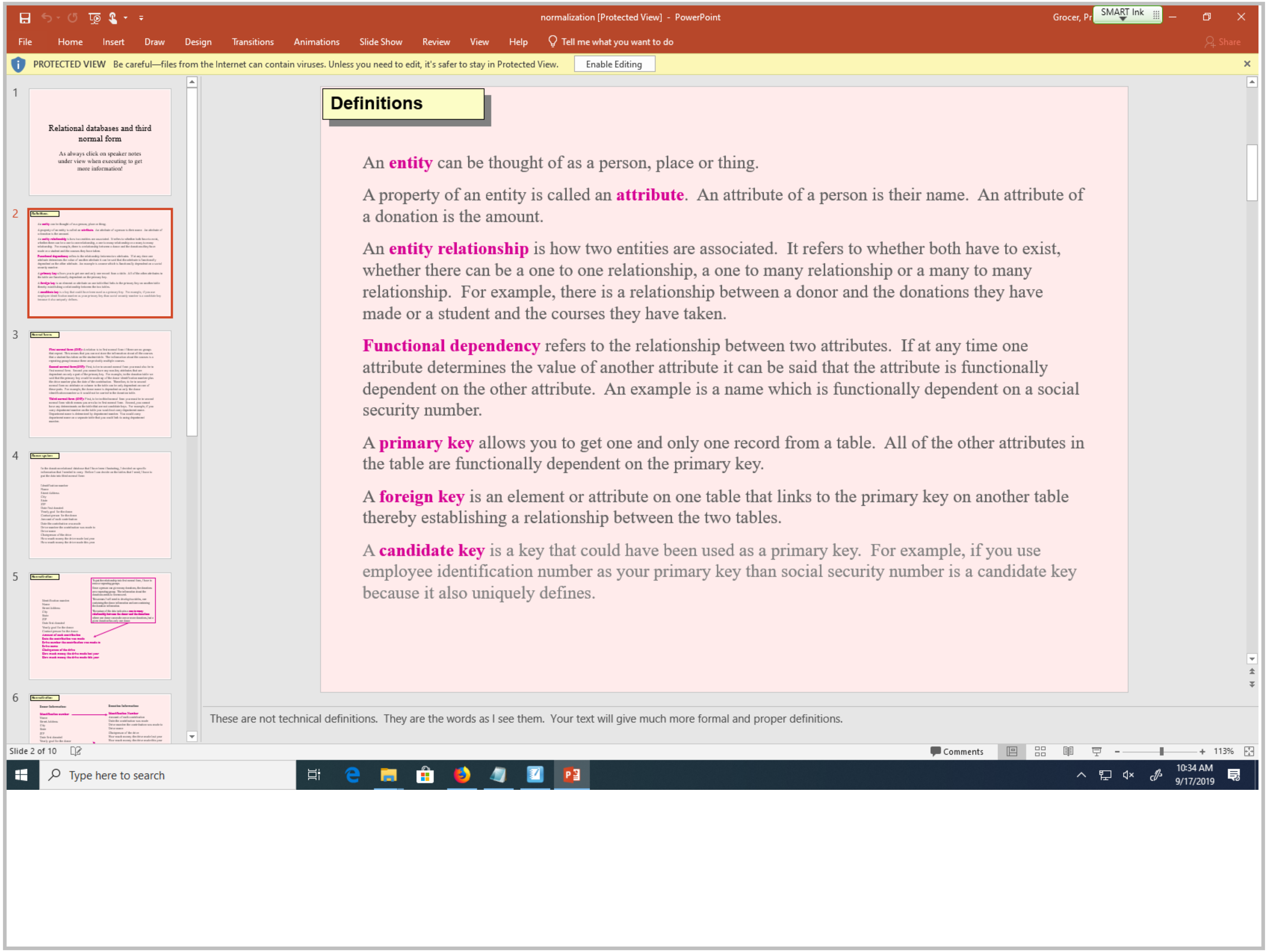
- A relation is in **second normal form** if it is in first normal form and no non-key attribute is dependent on only a portion of the primary key. (Note: an attribute is a non-key attribute if it is not a part of the primary key).

- A relation is in **third normal form** if it is in second normal form and if the only determinants it contains are candidate keys. (Note: any attribute that determines another attribute is called a determinant).

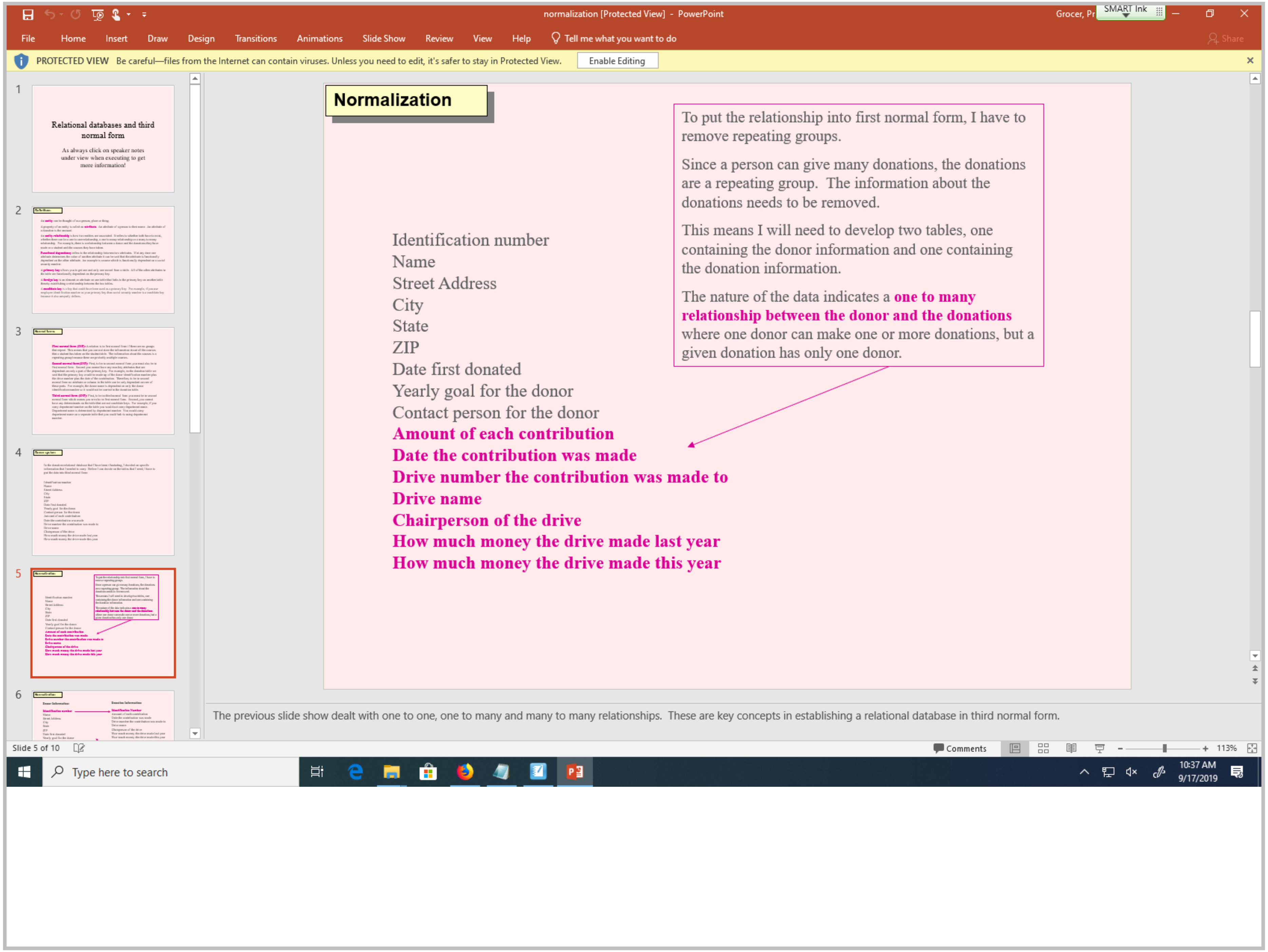
donor
PK didno
dname
orgid
~~Orgname~~

donation
PK didno
drive no
date/time
amt
~~dname~~

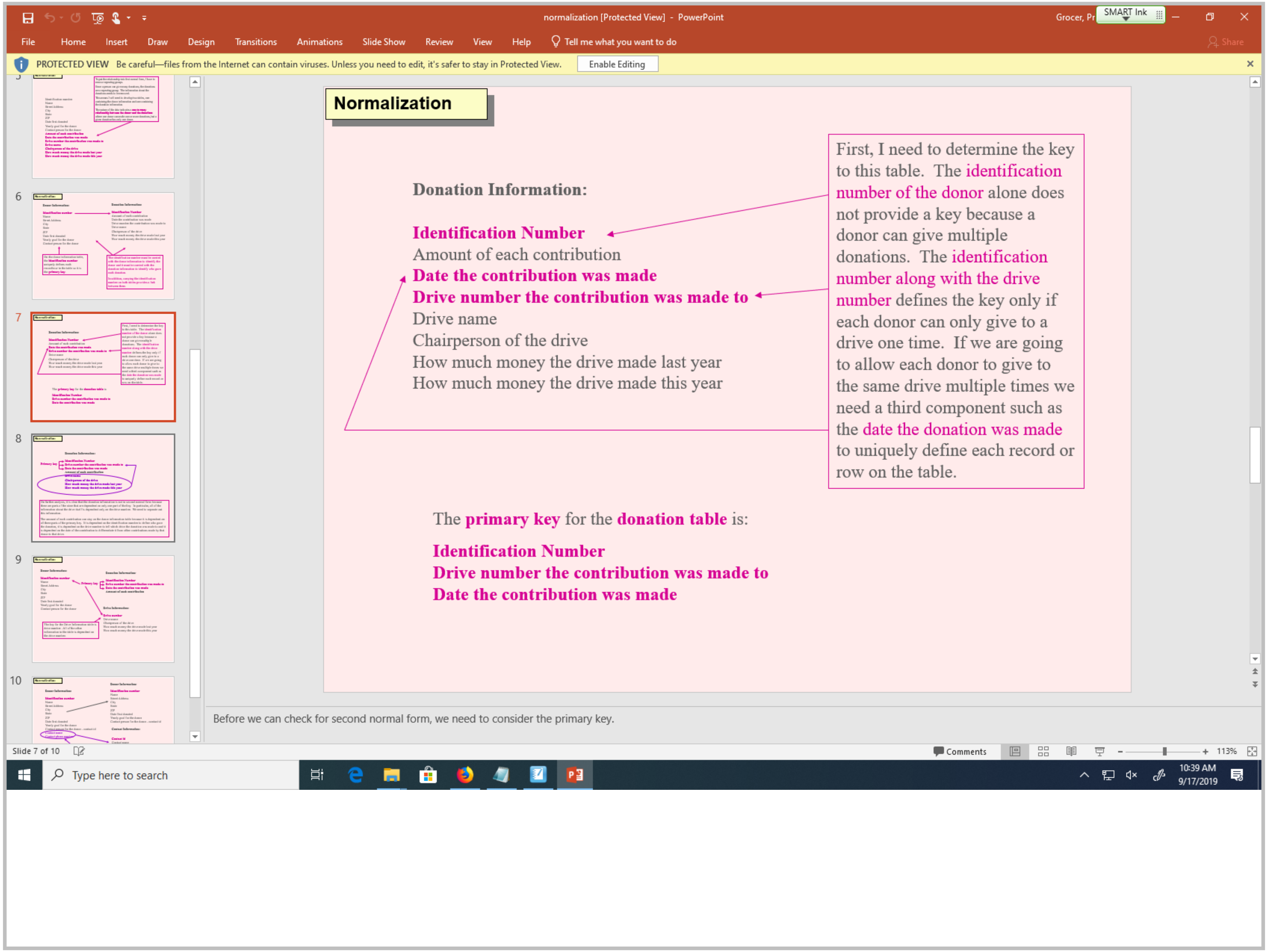
drive
PK drive no
drive name
contact



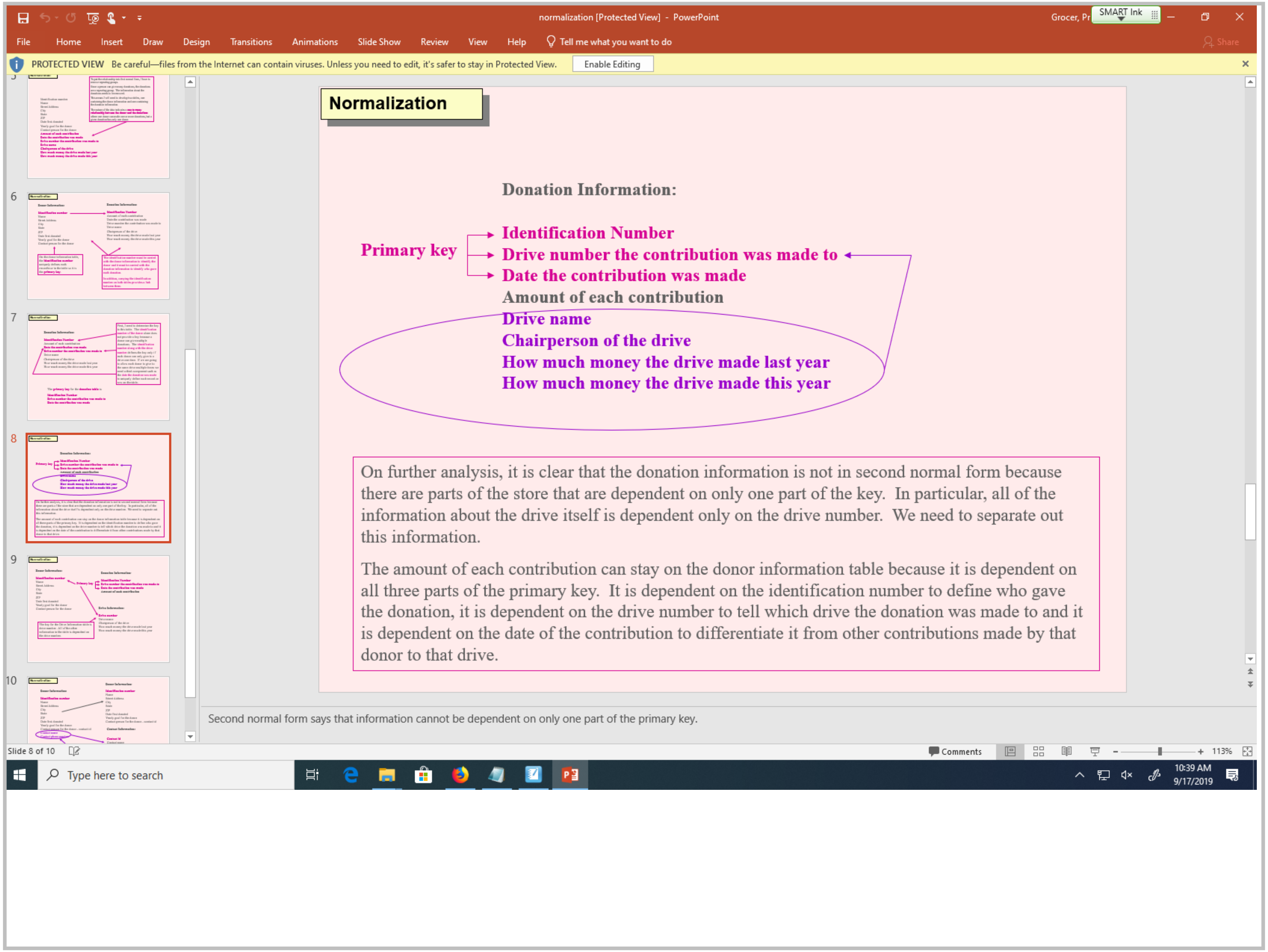
Title: Sep 17-10:34 AM (11 of 16)



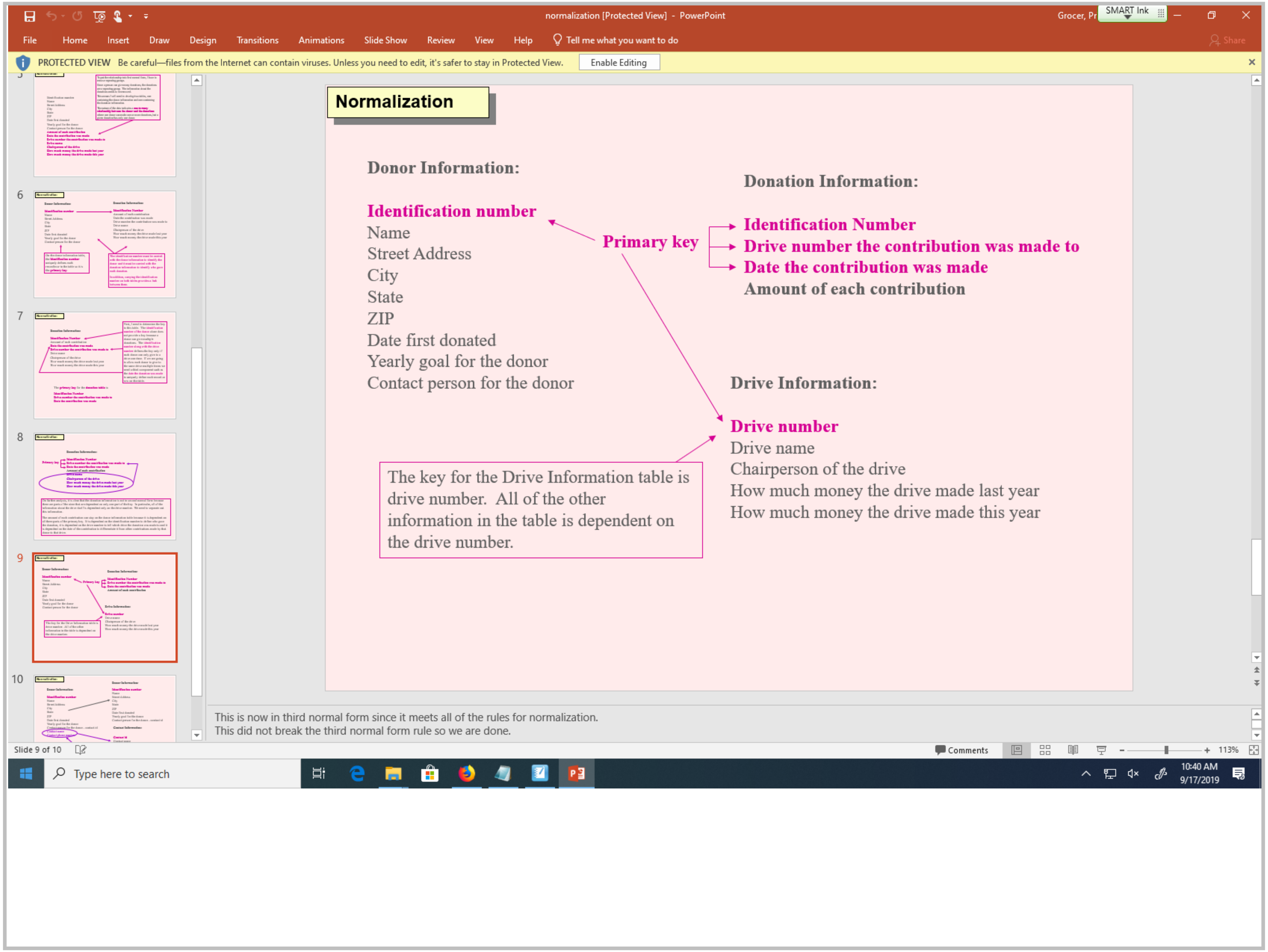
Title: Sep 17-10:37 AM (12 of 16)



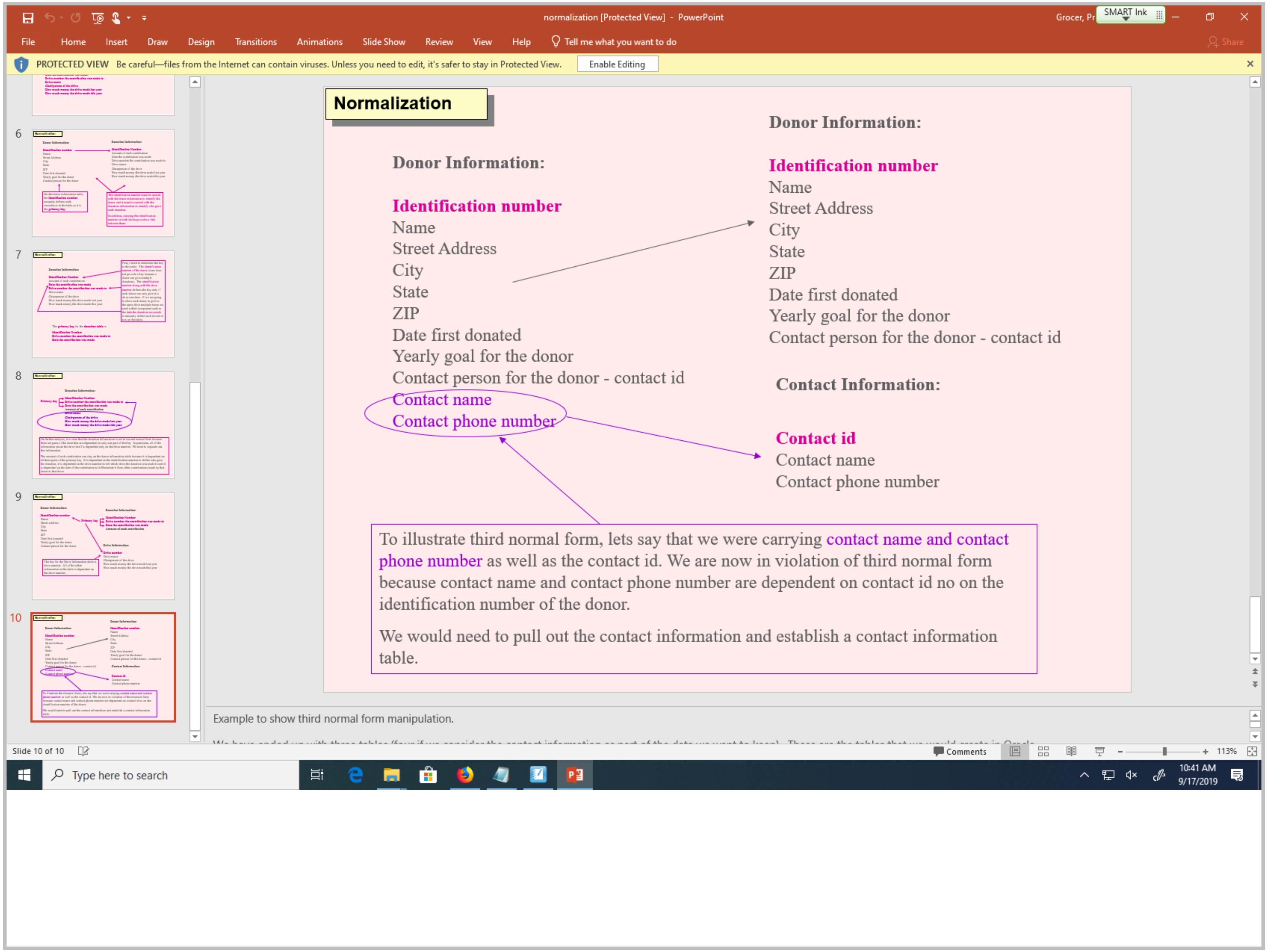
Title: Sep 17-10:39 AM (13 of 16)



Title: Sep 17-10:39 AM (14 of 16)



Title: Sep 17-10:40 AM (15 of 16)



Title: Sep 17-10:41 AM (16 of 16)