SPATIAL DATABASES (CS – 615)
DONKEY CART ASSIGNMENT

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Question:
Write insert queries into SDO_ GEOM and design the Donkey Cart image in MapViewer.

Solution:

I decided to be a little creative on this assignment. As a result, I included some more structures in the table other than the ones asked in the assignment. This includes mountains, sun, etc. The coordinates for the various objects are as follows:

[Rectangle]
Cart:
(2.01, 6.92, 12.94, 9.03)
(4, 6, 21.36, 6.92)

[Line]
Birds:
(18.88, 18.85, 19.53, 18.39)
(19.53, 18.39, 20.09, 19.01)
(17.71, 18.24, 18.13, 17.55)
(18.13, 17.55, 18.5, 18.16)
(19.21, 17.63, 19.67, 17.13)
(19.67, 17.13, 20.14, 17.74)

Cart:
(4.53, 9.03, 8, 12)
(6, 12, 10, 9.03)

Snow:
(4.53, 16.53, 6.72, 17.28)
(11.26, 17.68, 15.49, 17.68)
(21.39, 16.88, 23.55, 17.7)

Mouth:
(31.25, 6.88, 33.01, 7.57)

Eye:
(30.8, 8.53, 31.4, 8.87)

[Circle]
Sun:
(29.39, 17.44, 32.15, 18.32, 31.22, 16.21)

Wheel:
(8.32, 5.98, 5.28, 3.94, 8.36, 1.95)

[Polygon]
Donkey:
(31.22, 10.02, 32.99, 8.34, 33.04, 6.47, 32, 6, 30.66, 7.57, 28.09, 5.55, 27.38, 4.4, 26.45, 3.14, 27.2, 2.03, 26.26, 2.03, 25.51, 3.22, 26.45, 4.4, 21.4, 4.43, 20.33, 3.02, 21.22, 2.03, 20.47, 2.03, 19.58, 3.02, 20.7, 4.43, 18.74, 4.44, 17.71, 5.97, 21.36, 5.97, 21.36, 6.92, 17.66, 6.92, 18.04, 7.46, 16.03, 6.92, 17.94, 8.26, 28.04, 8.3, 30, 10, 29.3, 11.47, 30.56, 10.63, 31.45, 11.63)

Donkey Seat:
(21.96, 8.28, 21.4, 7.54, 25.66, 7.54, 26.17, 8.29)

Cart Box:
(2.01, 9.03, 3.08, 10.98, 4.53, 10.98, 4.53, 9.03)
(4.53, 9.03, 4.53, 10.98, 6, 12, 8, 12, 10.05, 10.67, 10, 9.03)

Tree:
(16, 10, 16, 12, 15.23, 11.74, 14.67, 12.24, 14.86, 12.85, 14.67, 13.54, 16, 14, 16.73, 14.3, 16.87, 13.65, 17.94, 13.12, 17.94, 13.12, 17.66, 12.39, 16.73, 11.97, 16.73, 10.02)

Mountains:
(2, 14, 6, 18, 10, 14)
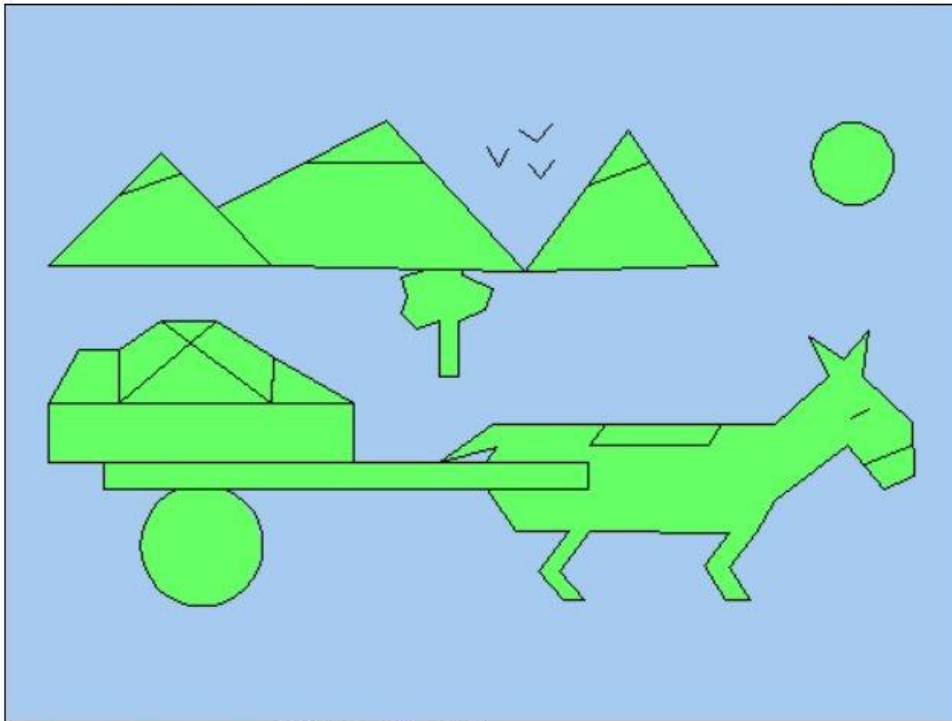(10, 14, 8, 16, 14.11, 19.16, 19.11, 13.77)
(19.11, 13.77, 22.8, 18.81, 26, 14)

Cart Box:
(10.05, 10.67, 12.94, 9.03, 10, 9.03)

The output for the SQL queries described below looks as follows in MapViewer:

The SQL queries for the above geometrical shapes are as follows:

DROP TABLE donkey_cart;

CREATE TABLE donkey_cart (

 id NUMBER PRIMARY KEY,

 name VARCHAR2(32),

 shape MDSYS.SDO_GEOMETRY);

```sql
INSERT INTO donkey_cart VALUES(
 1,
 'Polygon',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
  MDSYS.SDO_ORDINATE_ARRAY(31.22, 10.02, 32.99, 8.34, 33.04, 6.47, 32, 6, 30.66, 7.57, 28.09, 5.55,
27.38, 4.4, 26.45, 3.14, 27.2, 2.03, 26.26, 2.03, 25.51, 3.22, 26.45, 4.4, 21.4, 4.43, 20.33, 3.02, 21.22, 2.03,
20.47, 2.03, 19.58, 3.02, 20.7, 4.43, 18.74, 4.44, 17.71, 5.97, 21.36, 5.97, 21.36, 6.92, 17.66, 6.92, 18.04,
7.46, 16.03, 6.92, 17.94, 8.26, 28.04, 8.3, 30, 10, 29.3, 11.47, 30.56, 10.63, 31.45, 11.63)
 )
);


INSERT INTO donkey_cart VALUES(
 2,
 'Polygon',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
  MDSYS.SDO_ORDINATE_ARRAY(21.96, 8.28, 21.4, 7.54, 25.66, 7.54, 26.17, 8.29)
 )
);


INSERT INTO donkey_cart VALUES(
 3,
 'Polygon',
 MDSYS.SDO_GEOMETRY(
```

```sql
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
  MDSYS.SDO_ORDINATE_ARRAY(2.01, 9.03, 3.08, 10.98, 4.53, 10.98, 4.53, 9.03)
 )
);

INSERT INTO donkey_cart VALUES(
 4,
 'Polygon',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
  MDSYS.SDO_ORDINATE_ARRAY(4.53, 9.03, 4.53, 10.98, 6, 12, 8, 12, 10.05, 10.67, 10, 9.03)
 )
);

INSERT INTO donkey_cart VALUES(
 5,
 'Polygon',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
  MDSYS.SDO_ORDINATE_ARRAY(10.05, 10.67, 12.94, 9.03, 10, 9.03)
 )
);
```

```sql
INSERT INTO donkey_cart VALUES(
 6,
 'Circle',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,4),
  MDSYS.SDO_ORDINATE_ARRAY(29.39, 17.44, 32.15, 18.32, 31.22, 16.21)
 )
);

INSERT INTO donkey_cart VALUES(
 7,
 'Circle',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,4),
  MDSYS.SDO_ORDINATE_ARRAY(8.32, 5.98, 5.28, 3.94, 8.36, 1.95)
 )
);

INSERT INTO donkey_cart VALUES(
 8,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
```

```sql
  NULL,

  NULL,

  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),

  MDSYS.SDO_ORDINATE_ARRAY(18.88, 18.85, 19.53, 18.39)

 )

);


INSERT INTO donkey_cart VALUES(

 9,

 'Line',

 MDSYS.SDO_GEOMETRY(

  2,

  NULL,

  NULL,

  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),

  MDSYS.SDO_ORDINATE_ARRAY(19.53, 18.39, 20.09, 19.01)

 )

);


INSERT INTO donkey_cart VALUES(

 10,

 'Line',

 MDSYS.SDO_GEOMETRY(

  2,

  NULL,

  NULL,

  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),

  MDSYS.SDO_ORDINATE_ARRAY(17.71, 18.24, 18.13, 17.55)

 )

);
```

```sql
INSERT INTO donkey_cart VALUES(
 11,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
  MDSYS.SDO_ORDINATE_ARRAY(18.13, 17.55, 18.5, 18.16)
 )
);

INSERT INTO donkey_cart VALUES(
 12,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
  MDSYS.SDO_ORDINATE_ARRAY(19.21, 17.63, 19.67, 17.13)
 )
);

INSERT INTO donkey_cart VALUES(
 13,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
  NULL,
  NULL,
```

```sql
  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
  MDSYS.SDO_ORDINATE_ARRAY(19.67, 17.13, 20.14, 17.74)
 )
);


INSERT INTO donkey_cart VALUES(
 14,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
  MDSYS.SDO_ORDINATE_ARRAY(4.53, 9.03, 8, 12)
 )
);


INSERT INTO donkey_cart VALUES(
 15,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
  MDSYS.SDO_ORDINATE_ARRAY(6, 12, 10, 9.03)
 )
);


INSERT INTO donkey_cart VALUES(
 16,
```

```sql
  'Rectangle',
  MDSYS.SDO_GEOMETRY(
   2003,
   NULL,
   NULL,
   MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,3),
   MDSYS.SDO_ORDINATE_ARRAY(2.01, 6.92, 12.94, 9.03)
  )
);

INSERT INTO donkey_cart VALUES(
  17,
  'Rectangle',
  MDSYS.SDO_GEOMETRY(
   2003,
   NULL,
   NULL,
   MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,3),
   MDSYS.SDO_ORDINATE_ARRAY(4, 6, 21.36, 6.92)
  )
);

INSERT INTO donkey_cart VALUES(
  18,
  'Polygon',
  MDSYS.SDO_GEOMETRY(
   2003,
   NULL,
   NULL,
   MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
```

```
    MDSYS.SDO_ORDINATE_ARRAY(16, 10, 16, 12, 15.23, 11.74, 14.67, 12.24, 14.86, 12.85, 14.67, 13.54,
16, 14, 16.73, 14.3, 16.87, 13.65, 17.94, 13.12, 17.94, 13.12, 17.66, 12.39, 16.73, 11.97, 16.73, 10.02)
 )
);


INSERT INTO donkey_cart VALUES(
 19,
 'Polygon',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
  MDSYS.SDO_ORDINATE_ARRAY(2, 14, 6, 18, 10, 14)
 )
);


INSERT INTO donkey_cart VALUES(
 20,
 'Polygon',
 MDSYS.SDO_GEOMETRY(
  2003,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
  MDSYS.SDO_ORDINATE_ARRAY(10, 14, 8, 16, 14.11, 19.16, 19.11, 13.77)
 )
);


INSERT INTO donkey_cart VALUES(
 21,
```

```sql
  'Polygon',
  MDSYS.SDO_GEOMETRY(
    2003,
    NULL,
    NULL,
    MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),
    MDSYS.SDO_ORDINATE_ARRAY(19.11, 13.77, 22.8, 18.81, 26, 14)
  )
);

INSERT INTO donkey_cart VALUES(
  22,
  'Line',
  MDSYS.SDO_GEOMETRY(
    2,
    NULL,
    NULL,
    MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
    MDSYS.SDO_ORDINATE_ARRAY(4.53, 16.53, 6.72, 17.28)
  )
);

INSERT INTO donkey_cart VALUES(
  23,
  'Line',
  MDSYS.SDO_GEOMETRY(
    2,
    NULL,
    NULL,
    MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
    MDSYS.SDO_ORDINATE_ARRAY(11.26, 17.68, 15.49, 17.68)
```

```
 )
);


INSERT INTO donkey_cart VALUES(
 24,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
  MDSYS.SDO_ORDINATE_ARRAY(21.39, 16.88, 23.55, 17.7)
 )
);


INSERT INTO donkey_cart VALUES(
 25,
 'Line',
 MDSYS.SDO_GEOMETRY(
  2,
  NULL,
  NULL,
  MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
  MDSYS.SDO_ORDINATE_ARRAY(30.8, 8.53, 31.4, 8.87)
 )
);


INSERT INTO donkey_cart VALUES(
 26,
 'Line',
 MDSYS.SDO_GEOMETRY(
```

```
    2,
    NULL,
    NULL,
    MDSYS.SDO_ELEM_INFO_ARRAY(1,2,1),
    MDSYS.SDO_ORDINATE_ARRAY(31.25, 6.88, 33.01, 7.57)
 )
);


INSERT INTO USER_SDO_GEOM_METADATA
 VALUES (
 'donkey_cart',
 'shape',
 MDSYS.SDO_DIM_ARRAY(
  MDSYS.SDO_DIM_ELEMENT('X', 0, 20, 0.005),
   MDSYS.SDO_DIM_ELEMENT('Y', 0, 20, 0.005)
   ),
 NULL
);



CREATE INDEX donkey_cart_idx
ON donkey_cart(shape)
INDEXTYPE IS MDSYS.SPATIAL_INDEX;
```