07_change_column_casing

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1 Changing Column Cases

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```python
import pandas as pd
data = pd.read_csv('./data/artwork_sample.csv')
```

```python
data.columns
```

```
Index(['id', 'accession_number', 'artist', 'artistRole', 'artistId', 'title',
       'dateText', 'medium', 'creditLine', 'year', 'acquisitionYear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailCopyright', 'thumbnailUrl', 'url'],
      dtype='object')
```

```python
data.columns.str.lower()
```

```
Index(['id', 'accession_number', 'artist', 'artistrole', 'artistid', 'title',
       'datetext', 'medium', 'creditline', 'year', 'acquisitionyear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailcopyright', 'thumbnailurl', 'url'],
      dtype='object')
```

```python
# list comprehension
[x.lower() for x in data.columns]
```

```
['id',
 'accession_number',
 'artist',
 'artistrole',
 'artistid',
 'title',
 'datetext',
 'medium',
 'creditline',
 'year',
 'acquisitionyear',
```

```
    'dimensions',
    'width',
    'height',
    'depth',
    'units',
    'inscription',
    'thumbnailcopyright',
    'thumbnailurl',
    'url']
```

`[ ]:` `data.columns`

`[ ]:`
```
Index(['id', 'accession_number', 'artist', 'artistRole', 'artistId', 'title',
       'dateText', 'medium', 'creditLine', 'year', 'acquisitionYear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailCopyright', 'thumbnailUrl', 'url'],
      dtype='object')
```

`[ ]:`
```python
# Now we know how to convert them, we can assign the converted values to columns
data.columns = [x.lower() for x in data.columns]
```

`[ ]:` `data.columns`

`[ ]:`
```
Index(['id', 'accession_number', 'artist', 'artistrole', 'artistid', 'title',
       'datetext', 'medium', 'creditline', 'year', 'acquisitionyear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailcopyright', 'thumbnailurl', 'url'],
      dtype='object')
```

`[ ]:` `data = pd.read_csv('./data/artwork_sample.csv')`

`[ ]:` `data.columns`

`[ ]:`
```
Index(['id', 'accession_number', 'artist', 'artistRole', 'artistId', 'title',
       'dateText', 'medium', 'creditLine', 'year', 'acquisitionYear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailCopyright', 'thumbnailUrl', 'url'],
      dtype='object')
```

`[ ]:`
```python
lower_column_names = map(lambda x: x.lower(), data.columns)
list(lower_column_names)
```

`[ ]:`
```
['id',
 'accession_number',
 'artist',
 'artistrole',
 'artistid',
 'title',
```

```
    'datetext',
    'medium',
    'creditline',
    'year',
    'acquisitionyear',
    'dimensions',
    'width',
    'height',
    'depth',
    'units',
    'inscription',
    'thumbnailcopyright',
    'thumbnailurl',
    'url']
```

```python
[ ]: data.columns = map(lambda x: x.lower(), data.columns)
```

```python
[ ]: data.columns
```

```
[ ]: Index(['id', 'accession_number', 'artist', 'artistrole', 'artistid', 'title',
           'datetext', 'medium', 'creditline', 'year', 'acquisitionyear',
           'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
           'thumbnailcopyright', 'thumbnailurl', 'url'],
          dtype='object')
```

```python
[ ]: data = pd.read_csv('./data/artwork_sample.csv')
```

```python
[ ]: data.columns
```

```
[ ]: Index(['id', 'accession_number', 'artist', 'artistRole', 'artistId', 'title',
           'dateText', 'medium', 'creditLine', 'year', 'acquisitionYear',
           'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
           'thumbnailCopyright', 'thumbnailUrl', 'url'],
          dtype='object')
```

```python
[ ]: # Convert all camel case column names to snake case
     import re
```

```python
[ ]: # Todo: understand how Regular Expressions works in python,
     #  What features re offers, and what is r'' string
     data.columns = [re.sub(r'([A-Z])', r'_\1', x).lower() for x in data.columns]
```

```python
[ ]: data.columns
```

```
[ ]: Index(['id', 'accession_number', 'artist', 'artist_role', 'artist_id', 'title',
           'date_text', 'medium', 'credit_line', 'year', 'acquisition_year',
           'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
           'thumbnail_copyright', 'thumbnail_url', 'url'],
```

```
        dtype='object')
```

2 Renaming Columns

```
[ ]: data = pd.read_csv('./data/artwork_sample.csv')
```

```
[ ]: data.columns
```

```
[ ]: Index(['id', 'accession_number', 'artist', 'artistRole', 'artistId', 'title',
             'dateText', 'medium', 'creditLine', 'year', 'acquisitionYear',
             'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
             'thumbnailCopyright', 'thumbnailUrl', 'url'],
            dtype='object')
```

```
[ ]: data.rename(columns={"thumbnailUrl": 'thumbnail'})
```

```
[ ]:       id accession_number          artist artistRole  artistId  \
     0  1035           A00001   Blake, Robert     artist        38
     1  1036           A00002   Blake, Robert     artist        38
     2  1037           A00003   Blake, Robert     artist        38
     3  1038           A00004   Blake, Robert     artist        38
     4  1039           A00005  Blake, William     artist        39
     5  1040           A00006  Blake, William     artist        39
     6  1041           A00007  Blake, William     artist        39
     7  1042           A00008  Blake, William     artist        39
     8  1043           A00009  Blake, William     artist        39
     9  1044           A00010  Blake, William     artist        39

                                                    title              dateText  \
     0  A Figure Bowing before a Seated Old Man with h…        date not known
     1  Two Drawings of Frightened Figures, Probably f…        date not known
     2  The Preaching of Warning. Verso: An Old Man En…                 ?c.1785
     3     Six Drawings of Figures with Outstretched Arms        date not known
     4  The Circle of the Lustful: Francesca da Rimini…  1826-7, reprinted 1892
     5     Ciampolo the Barrator Tormented by the Devils  1826-7, reprinted 1892
     6                        The Baffled Devils Fighting  1826-7, reprinted 1892
     7  The Six-Footed Serpent Attacking Agnolo Brunel…  1826-7, reprinted 1892
     8                The Serpent Attacking Buoso Donati  1826-7, reprinted 1892
     9                The Pit of Disease: The Falsifiers  1826-7, reprinted 1892

                                             medium  \
     0  Watercolour, ink, chalk and graphite on paper…
     1                             Graphite on paper
     2        Graphite on paper. Verso: graphite on paper
     3                             Graphite on paper
     4                       Line engraving on paper
```

4

```
5                       Line engraving on paper
6                       Line engraving on paper
7                       Line engraving on paper
8                       Line engraving on paper
9                       Line engraving on paper

                                        creditLine    year  acquisitionYear  \
0             Presented by Mrs John Richmond 1922     NaN             1922
1             Presented by Mrs John Richmond 1922     NaN             1922
2             Presented by Mrs John Richmond 1922  1785.0             1922
3             Presented by Mrs John Richmond 1922     NaN             1922
4   Purchased with the assistance of a special gra…  1826.0             1919
5   Purchased with the assistance of a special gra…  1826.0             1919
6   Purchased with the assistance of a special gra…  1826.0             1919
7   Purchased with the assistance of a special gra…  1826.0             1919
8   Purchased with the assistance of a special gra…  1826.0             1919
9   Purchased with the assistance of a special gra…  1826.0             1919

              dimensions  width  height  depth units  inscription  \
0   support: 394 x 419 mm  394.0   419.0    NaN    mm          NaN
1   support: 311 x 213 mm  311.0   213.0    NaN    mm          NaN
2   support: 343 x 467 mm  343.0   467.0    NaN    mm          NaN
3   support: 318 x 394 mm  318.0   394.0    NaN    mm          NaN
4     image: 243 x 335 mm  243.0   335.0    NaN    mm          NaN
5     image: 240 x 338 mm  240.0   338.0    NaN    mm          NaN
6     image: 242 x 334 mm  242.0   334.0    NaN    mm          NaN
7     image: 246 x 340 mm  246.0   340.0    NaN    mm          NaN
8     image: 241 x 335 mm  241.0   335.0    NaN    mm          NaN
9     image: 243 x 340 mm  243.0   340.0    NaN    mm          NaN

   thumbnailCopyright                                          thumbnail  \
0                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
1                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
2                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
3                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
4                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
5                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
6                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
7                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
8                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
9                 NaN  http://www.tate.org.uk/art/images/work/A/A00/A…

                                        url
0  http://www.tate.org.uk/art/artworks/blake-a-fi…
1  http://www.tate.org.uk/art/artworks/blake-two-…
2  http://www.tate.org.uk/art/artworks/blake-the-…
3  http://www.tate.org.uk/art/artworks/blake-six-…
```

```
4  http://www.tate.org.uk/art/artworks/blake-the-…
5  http://www.tate.org.uk/art/artworks/blake-ciam…
6  http://www.tate.org.uk/art/artworks/blake-the-…
7  http://www.tate.org.uk/art/artworks/blake-the-…
8  http://www.tate.org.uk/art/artworks/blake-the-…
9  http://www.tate.org.uk/art/artworks/blake-the-…
```

[ ]: `data.columns`

[ ]:
```
Index(['id', 'accession_number', 'artist', 'artistRole', 'artistId', 'title',
       'dateText', 'medium', 'creditLine', 'year', 'acquisitionYear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailCopyright', 'thumbnailUrl', 'url'],
      dtype='object')
```

[ ]:
```
data.rename(columns={"thumbnailUrl": 'thumbnail'}, inplace=True)
data.filter(items=['title', 'thumbnail'])
```

[ ]:
```
                                               title  \
0  A Figure Bowing before a Seated Old Man with h…
1  Two Drawings of Frightened Figures, Probably f…
2  The Preaching of Warning. Verso: An Old Man En…
3     Six Drawings of Figures with Outstretched Arms
4  The Circle of the Lustful: Francesca da Rimini…
5       Ciampolo the Barrator Tormented by the Devils
6                          The Baffled Devils Fighting
7  The Six-Footed Serpent Attacking Agnolo Brunel…
8                  The Serpent Attacking Buoso Donati
9                    The Pit of Disease: The Falsifiers

                                           thumbnail
0  http://www.tate.org.uk/art/images/work/A/A00/A…
1  http://www.tate.org.uk/art/images/work/A/A00/A…
2  http://www.tate.org.uk/art/images/work/A/A00/A…
3  http://www.tate.org.uk/art/images/work/A/A00/A…
4  http://www.tate.org.uk/art/images/work/A/A00/A…
5  http://www.tate.org.uk/art/images/work/A/A00/A…
6  http://www.tate.org.uk/art/images/work/A/A00/A…
7  http://www.tate.org.uk/art/images/work/A/A00/A…
8  http://www.tate.org.uk/art/images/work/A/A00/A…
9  http://www.tate.org.uk/art/images/work/A/A00/A…
```

[ ]: `data.filter(items=['thumbnail', 'title'])`

[ ]:
```
                                           thumbnail  \
0  http://www.tate.org.uk/art/images/work/A/A00/A…
1  http://www.tate.org.uk/art/images/work/A/A00/A…
```

```
2  http://www.tate.org.uk/art/images/work/A/A00/A…
3  http://www.tate.org.uk/art/images/work/A/A00/A…
4  http://www.tate.org.uk/art/images/work/A/A00/A…
5  http://www.tate.org.uk/art/images/work/A/A00/A…
6  http://www.tate.org.uk/art/images/work/A/A00/A…
7  http://www.tate.org.uk/art/images/work/A/A00/A…
8  http://www.tate.org.uk/art/images/work/A/A00/A…
9  http://www.tate.org.uk/art/images/work/A/A00/A…

                                                  title
0  A Figure Bowing before a Seated Old Man with h…
1  Two Drawings of Frightened Figures, Probably f…
2  The Preaching of Warning. Verso: An Old Man En…
3     Six Drawings of Figures with Outstretched Arms
4  The Circle of the Lustful: Francesca da Rimini…
5        Ciampolo the Barrator Tormented by the Devils
6                          The Baffled Devils Fighting
7  The Six-Footed Serpent Attacking Agnolo Brunel…
8                   The Serpent Attacking Buoso Donati
9                   The Pit of Disease: The Falsifiers
```

```python
data.rename(columns=lambda x: x.lower(), inplace=True)
data.columns
```

```
Index(['id', 'accession_number', 'artist', 'artistrole', 'artistid', 'title',
       'datetext', 'medium', 'creditline', 'year', 'acquisitionyear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailcopyright', 'thumbnail', 'url'],
      dtype='object')
```

```python
# column names can be changed by providing a list manually
data.columns = ['id', 'AccessionNumber', 'Artist', 'ArtistRole', 'artistid',
 'title',
                'datetext', 'medium', 'creditline', 'year', 'acquisitionyear',
                'dimensions', 'width', 'height', 'depth', 'units',
 'inscription',
                'thumbnailcopyright', 'thumbnail', 'url']
```

```python
data.columns
```

```
Index(['id', 'AccessionNumber', 'Artist', 'ArtistRole', 'artistid', 'title',
       'datetext', 'medium', 'creditline', 'year', 'acquisitionyear',
       'dimensions', 'width', 'height', 'depth', 'units', 'inscription',
       'thumbnailcopyright', 'thumbnail', 'url'],
      dtype='object')
```

```python
# column names can be provided when reading data
# if not provided header=0, pandas will assume there is no header row, and read
↪the row 1 as data row.
data = pd.read_csv('./data/artwork_sample.csv', names=['id', 'AccessionNumber',
↪'Artist', 'ArtistRole', 'ArtistId', 'title',
                                                        'datetext', 'medium',
↪'creditline', 'year', 'acquisitionyear',
                                                        'dimensions', 'width',
↪'height', 'depth', 'units', 'inscription',
                                                        'thumbnailcopyright',
↪'thumbnail', 'url'])
data
```

```
        id   AccessionNumber           Artist  ArtistRole  ArtistId  \
0       id   accession_number           artist  artistRole  artistId
1     1035             A00001    Blake, Robert      artist        38
2     1036             A00002    Blake, Robert      artist        38
3     1037             A00003    Blake, Robert      artist        38
4     1038             A00004    Blake, Robert      artist        38
5     1039             A00005  Blake, William      artist        39
6     1040             A00006  Blake, William      artist        39
7     1041             A00007  Blake, William      artist        39
8     1042             A00008  Blake, William      artist        39
9     1043             A00009  Blake, William      artist        39
10    1044             A00010  Blake, William      artist        39

                                                title              datetext  \
0                                               title              dateText
1   A Figure Bowing before a Seated Old Man with h…         date not known
2   Two Drawings of Frightened Figures, Probably f…         date not known
3   The Preaching of Warning. Verso: An Old Man En…                 ?c.1785
4       Six Drawings of Figures with Outstretched Arms         date not known
5   The Circle of the Lustful: Francesca da Rimini…  1826-7, reprinted 1892
6       Ciampolo the Barrator Tormented by the Devils  1826-7, reprinted 1892
7                          The Baffled Devils Fighting  1826-7, reprinted 1892
8   The Six-Footed Serpent Attacking Agnolo Brunel…  1826-7, reprinted 1892
9                  The Serpent Attacking Buoso Donati  1826-7, reprinted 1892
10                  The Pit of Disease: The Falsifiers  1826-7, reprinted 1892

                                     medium  \
0                                    medium
1   Watercolour, ink, chalk and graphite on paper…
2                            Graphite on paper
3         Graphite on paper. Verso: graphite on paper
4                            Graphite on paper
5                        Line engraving on paper
6                        Line engraving on paper
```

```
7                                      Line engraving on paper
8                                      Line engraving on paper
9                                      Line engraving on paper
10                                     Line engraving on paper


                                                   creditline    year  \
0                                                  creditLine    year
1              Presented by Mrs John Richmond 1922    NaN
2              Presented by Mrs John Richmond 1922    NaN
3              Presented by Mrs John Richmond 1922  1785.0
4              Presented by Mrs John Richmond 1922    NaN
5   Purchased with the assistance of a special gra…  1826.0
6   Purchased with the assistance of a special gra…  1826.0
7   Purchased with the assistance of a special gra…  1826.0
8   Purchased with the assistance of a special gra…  1826.0
9   Purchased with the assistance of a special gra…  1826.0
10  Purchased with the assistance of a special gra…  1826.0


    acquisitionyear              dimensions  width  height  depth  units  \
0   acquisitionYear              dimensions  width  height  depth  units
1              1922  support: 394 x 419 mm  394.0   419.0    NaN     mm
2              1922  support: 311 x 213 mm  311.0   213.0    NaN     mm
3              1922  support: 343 x 467 mm  343.0   467.0    NaN     mm
4              1922  support: 318 x 394 mm  318.0   394.0    NaN     mm
5              1919    image: 243 x 335 mm  243.0   335.0    NaN     mm
6              1919    image: 240 x 338 mm  240.0   338.0    NaN     mm
7              1919    image: 242 x 334 mm  242.0   334.0    NaN     mm
8              1919    image: 246 x 340 mm  246.0   340.0    NaN     mm
9              1919    image: 241 x 335 mm  241.0   335.0    NaN     mm
10             1919    image: 243 x 340 mm  243.0   340.0    NaN     mm


    inscription  thumbnailcopyright  \
0   inscription  thumbnailCopyright
1          NaN                 NaN
2          NaN                 NaN
3          NaN                 NaN
4          NaN                 NaN
5          NaN                 NaN
6          NaN                 NaN
7          NaN                 NaN
8          NaN                 NaN
9          NaN                 NaN
10         NaN                 NaN


                                            thumbnail  \
0                                        thumbnailUrl
1   http://www.tate.org.uk/art/images/work/A/A00/A…
```

```
2    http://www.tate.org.uk/art/images/work/A/A00/A…
3    http://www.tate.org.uk/art/images/work/A/A00/A…
4    http://www.tate.org.uk/art/images/work/A/A00/A…
5    http://www.tate.org.uk/art/images/work/A/A00/A…
6    http://www.tate.org.uk/art/images/work/A/A00/A…
7    http://www.tate.org.uk/art/images/work/A/A00/A…
8    http://www.tate.org.uk/art/images/work/A/A00/A…
9    http://www.tate.org.uk/art/images/work/A/A00/A…
10   http://www.tate.org.uk/art/images/work/A/A00/A…

                                                     url
0                                                    url
1    http://www.tate.org.uk/art/artworks/blake-a-fi…
2    http://www.tate.org.uk/art/artworks/blake-two-…
3    http://www.tate.org.uk/art/artworks/blake-the-…
4    http://www.tate.org.uk/art/artworks/blake-six-…
5    http://www.tate.org.uk/art/artworks/blake-the-…
6    http://www.tate.org.uk/art/artworks/blake-ciam…
7    http://www.tate.org.uk/art/artworks/blake-the-…
8    http://www.tate.org.uk/art/artworks/blake-the-…
9    http://www.tate.org.uk/art/artworks/blake-the-…
10   http://www.tate.org.uk/art/artworks/blake-the-…
```

```python
# column names can be provided when reading data
# header=0 means header row is row number zero.
data = pd.read_csv('./data/artwork_sample.csv', names=['id', 'AccessionNumber',
 'Artist', 'ArtistRole', 'ArtistId', 'title',
                                                        'datetext', 'medium',
 'creditline', 'year', 'acquisitionyear',
                                                        'dimensions', 'width',
 'height', 'depth', 'units', 'inscription',
                                                        'thumbnailcopyright',
 'thumbnail', 'url'], header=0)
data
```

```
       id AccessionNumber          Artist ArtistRole  ArtistId  \
0    1035          A00001   Blake, Robert     artist        38
1    1036          A00002   Blake, Robert     artist        38
2    1037          A00003   Blake, Robert     artist        38
3    1038          A00004   Blake, Robert     artist        38
4    1039          A00005  Blake, William     artist        39
5    1040          A00006  Blake, William     artist        39
6    1041          A00007  Blake, William     artist        39
7    1042          A00008  Blake, William     artist        39
8    1043          A00009  Blake, William     artist        39
9    1044          A00010  Blake, William     artist        39
```

```
                                                 title              datetext  \
0  A Figure Bowing before a Seated Old Man with h…        date not known
1  Two Drawings of Frightened Figures, Probably f…        date not known
2  The Preaching of Warning. Verso: An Old Man En…               ?c.1785
3     Six Drawings of Figures with Outstretched Arms        date not known
4  The Circle of the Lustful: Francesca da Rimini…  1826-7, reprinted 1892
5      Ciampolo the Barrator Tormented by the Devils  1826-7, reprinted 1892
6                        The Baffled Devils Fighting  1826-7, reprinted 1892
7  The Six-Footed Serpent Attacking Agnolo Brunel…  1826-7, reprinted 1892
8                 The Serpent Attacking Buoso Donati  1826-7, reprinted 1892
9                 The Pit of Disease: The Falsifiers  1826-7, reprinted 1892


                                              medium  \
0  Watercolour, ink, chalk and graphite on paper…
1                                   Graphite on paper
2       Graphite on paper. Verso: graphite on paper
3                                   Graphite on paper
4                           Line engraving on paper
5                           Line engraving on paper
6                           Line engraving on paper
7                           Line engraving on paper
8                           Line engraving on paper
9                           Line engraving on paper


                                          creditline      year  acquisitionyear  \
0            Presented by Mrs John Richmond 1922       NaN             1922
1            Presented by Mrs John Richmond 1922       NaN             1922
2            Presented by Mrs John Richmond 1922    1785.0             1922
3            Presented by Mrs John Richmond 1922       NaN             1922
4  Purchased with the assistance of a special gra…  1826.0             1919
5  Purchased with the assistance of a special gra…  1826.0             1919
6  Purchased with the assistance of a special gra…  1826.0             1919
7  Purchased with the assistance of a special gra…  1826.0             1919
8  Purchased with the assistance of a special gra…  1826.0             1919
9  Purchased with the assistance of a special gra…  1826.0             1919


             dimensions  width  height  depth units  inscription  \
0  support: 394 x 419 mm  394.0   419.0    NaN    mm          NaN
1  support: 311 x 213 mm  311.0   213.0    NaN    mm          NaN
2  support: 343 x 467 mm  343.0   467.0    NaN    mm          NaN
3  support: 318 x 394 mm  318.0   394.0    NaN    mm          NaN
4    image: 243 x 335 mm  243.0   335.0    NaN    mm          NaN
5    image: 240 x 338 mm  240.0   338.0    NaN    mm          NaN
6    image: 242 x 334 mm  242.0   334.0    NaN    mm          NaN
7    image: 246 x 340 mm  246.0   340.0    NaN    mm          NaN
8    image: 241 x 335 mm  241.0   335.0    NaN    mm          NaN
9    image: 243 x 340 mm  243.0   340.0    NaN    mm          NaN
```

```
   thumbnailcopyright                                          thumbnail  \
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1                NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
2                NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
3                NaN  http://www.tate.org.uk/art/images/work/A/A00/A…
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9                NaN  http://www.tate.org.uk/art/images/work/A/A00/A…


                                                 url
0  http://www.tate.org.uk/art/artworks/blake-a-fi…
1  http://www.tate.org.uk/art/artworks/blake-two-…
2  http://www.tate.org.uk/art/artworks/blake-the-…
3  http://www.tate.org.uk/art/artworks/blake-six-…
4  http://www.tate.org.uk/art/artworks/blake-the-…
5  http://www.tate.org.uk/art/artworks/blake-ciam…
6  http://www.tate.org.uk/art/artworks/blake-the-…
7  http://www.tate.org.uk/art/artworks/blake-the-…
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