crowdfunding-wrangle

August 8, 2019

1 10 Years of Crowdfunding on Kickstarter - Data Wrangling

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3 Introduction

This notebook is dedicated to the data wrangling in preparation to the data analysis of "10 Years of Crowdfunding on Kickstarter".

I will first gather the data needed to make the analysis possible. Then, I'm going to make myself familiar with the data to understand the information and how I can use it for analysis. This involves the assessment of the data for quality and tidiness issues. The 3rd step of the wrangling is clean to our data. In order to prepare our records for analysis, I am going to correct or remove any corrupt, inaccurate and unnecessary observations. Lastly, I will output csv files containing a clean version of the data.

The Kickstarter data set was gathered in July 2019 from an automated web scraping service called Web Robots. Since 2016 they have been publishing monthly updates on on all ongoing and completed Kickstarter projects and released it to the public in the form of csv files on their website.

https://webrobots.io/kickstarter-datasets/

The web service does not give concrete information on how the data was scraped from the website, nor does it provide documentation about each data point. To really comprehend the data and to rule out erroneous information, I will need to collate this data set with Kickstarter's project archive, which is accessible online without any restrictions on www.kickstarter.com.

```
In [1]: import pandas as pd
        import numpy as np
        import matplotlib.pyplot as plt
```

```
import seaborn as sns
import json
import requests
import time
from csv import writer
import sys


# style settings
# uncomment the below to avoid collapsing of dataframes
# pd.set_option('display.max_rows', 2500)
# pd.set_option('display.max_columns', 100)
# pd.set_option('display.max_colwidth', -1)
```

4 Data Wrangling

Let's start by reading in all 55 files, that I had downloaded from Web Robots and combine the data into one data frame.

```
In [2]:  # read in all files into one dataframe
         file_name =  './data/Kickstarter_{}.csv'
         kickstarter = pd.concat([pd.read_csv(file_name.format(i)) for i in range(57)])
         kickstarter.reset_index(drop=True, inplace=True)
         kickstarter.head()

Out[2]:    backers_count                                                 blurb  \
        0             48  Citizen Carpentry is building community around...
        1              0      El buscador sostenible para gente responsable
        2              0  Would love to show everyone the beauty Eastern...
        3             44  A surrealist's guide to navigating the dark de...
        4              3  Continue to develop a user friendly one-person...

                                                    category  \
        0  {"id":356,"name":"Woodworking","slug":"crafts/...
        1  {"id":260,"name":"Interactive Design","slug":"...
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        3  {"id":42,"name":"Pop","slug":"music/pop","posi...
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        1                         0      ES   1469258234
        2                         0      US   1427808788
        3                      1782      US   1457626762
        4                       100      US   1396014888

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        1  {"id":1498616534,"name":"Raül Gómez Freixa","i...      EUR
```

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   currency_trailing_code  ...  \
0                    True  ...
1                   False  ...
2                    True  ...
3                    True  ...
4                    True  ...

                                                slug  \
0  citizen-carpentry-community-workshop-and-tool-...
1                                             simbin
2  photographing-places-i-love-mountains-of-easte...
3  how-to-breathe-underwater-in-the-black-box-deb...
4  backpackable-high-resolution-uav-habitat-mappi...

                                          source_url  spotlight staff_pick  \
0  https://www.kickstarter.com/discover/categorie...      False      False
1  https://www.kickstarter.com/discover/categorie...      False      False
2  https://www.kickstarter.com/discover/categorie...      False      False
3  https://www.kickstarter.com/discover/categorie...       True      False
4  https://www.kickstarter.com/discover/categorie...      False      False

         state  state_changed_at  static_usd_rate  \
0     canceled        1485878182         1.000000
1       failed        1473524887         1.098901
2     canceled        1429360155         1.000000
3   successful        1467648766         1.000000
4       failed        1399697848         1.000000

                                                urls  usd_pledged  usd_type
0  {"web":{"project":"https://www.kickstarter.com...       5528.0  domestic
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3  {"web":{"project":"https://www.kickstarter.com...       1782.0  domestic
4  {"web":{"project":"https://www.kickstarter.com...        100.0  domestic

[5 rows x 37 columns]
```

4.1 Assessment

First, let's make ourselves visually familiar with our data. Please find the summary of each variable interpretation at the end of the section. Subsequently, I will provide a summary of quality and tidiness issues.

```
In [3]: # show data frame
        kickstarter

Out[3]:          backers_count                                           blurb  \
        0                   48  Citizen Carpentry is building community around...
        1                    0      El buscador sostenible para gente responsable
        2                    0  Would love to show everyone the beauty Eastern...
        3                   44  A surrealist's guide to navigating the dark de...
        4                    3  Continue to develop a user friendly one-person...
        5                    5  LOVE STORY IS ABOUT THE REAL LOVE THAT PEOPLE ...
        6                    2  Constructed from the most technologically adva...
        7                    9  Trinaad, the sound of three Worlds which was p...
        8                    0  Together we can bring a star back on the map o...
        9                  165  Songwriter Joel B. New is creating his first-e...
        10                   2  Crear un Room Escape con enigmas y mecanismos ...
        11                  15  Leggings featuring the head, lips, and skin of...
        12                  47  Christopher Lee Bayda plans to release a Chris...
        13                   8  Gulcher Records needs your help keeping alive ...
        14                   0  Help fund my life long dream of becoming a Bus...
        15                 144  We are heading back into the studio to record ...
        16                   0  The local Scene needs a boost and an affordabl...
        17                  12  Working on a coffee table book, featuring nigh...
        18                   0  You may have heard of the term Escape Room, we...
        19                   2  When the white Tee is The Daily Make it 7ees\r...
        20                  71  We're making swim trunks from trash (recycled ...
        21                 112  We create high quality, Canadian made, ocean-f...
        22                1045  We're starting a new era of open space access,...
        23                  53  Compelling cross-genre music. Piano, cello, sa...
        24                   2  Jungle Book is the first live performance wher...
        25                  66  NeedLove Records is Philly's newest, funnest r...
        26                   3  An online memorial site acting as a all in one...
        27                   0  Broadcast whenever, wherever. Let your voice b...
        28                  62  We have designed an antimatter thruster capabl...
        29                   2  Alfie & Gaston the new BYOD (bring your own do...
        ...                ...                                                 ...
        212348               7  Gioielli in soutache e stampa 3d e altri mater...
        212349              32  A short lyrical dance film about a ballet danc...
        212350              96  A visual essay exploring humanity's relationsh...
        212351               4  Na een werkongeval komt Mike in een rolstoel t...
        212352              32  An addict who's lost everything finds redempti...
        212353               8  An amazing nature inspired sterling silver sta...
        212354              44  What if the three biggest superheroes were nev...
        212355              24  A specially cultivated selection of LGBT art a...
        212356              27  Help me fund the independent publishing of my ...
        212357              79  The untold story of an inland sea, a small tow...
        212358               8  Helping kids build a strong Islamic foundation...
        212359              21  Support our Christian string music. With your ...
        212360              29  Captures the journey of stray dogs that are re...
```

```
212361            57  A film exploring North America's rising resist...
212362            60  Thomas est un mari et un père irréprochable. M...
212363           106  Dave, an Arizona talk-radio personality, awake...
212364           155  A young couple's journey through love braving ...
212365           240  A documentary film chronicling the humor & hea...
212366           175  The true inspirational story of the hip hop ar...
212367           215  Spoiled Milk is a USC Graduate thesis film abo...
212368             2  Mybullylove because your Frenchie matter!\r\nM...
212369            35  Dean and Molly are two teachers, who have writ...
212370             1  I've made potato salad before.  That other guy...
212371            46  140-Page Photography Book & Family Portrait Pa...
212372           143          big trees broken hearts beautiful images
212373           204  ZEEZ is wearable technology.ăZEEZ will adjust ...
212374             7  *CURRENTLY UNDER FABRICATION* Click to see wha...
212375          1085  A Collection of the first 220 Q2Q Comics strip...
212376            70  Help an artist raise funds to earn an East Bay...
212377            37  A short film about two brothers' power struggl...

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1	0	ES	1469258234
2	0	US	1427808788
3	1782	US	1457626762
4	100	US	1396014888
5	265	US	1376248448
6	2	GB	1540592817
7	570	FR	1491551387
8	0	US	1374507930
9	7001	US	1447342675
10	696	ES	1482321058
11	241	US	1441251288
12	5301	US	1356637207
13	1522	US	1428429392

14	0	US	1421357956
15	8909	US	1333653229
16	0	US	1465520471
17	556	US	1534609628
18	0	GB	1456487139
19	16	US	1504893560
20	9013	US	1525195699
21	8628	CA	1486009590
22	121890	GB	1429961560
23	2347	US	1495114436
24	12	NL	1437162117
25	12134	US	1410808744
26	88	GB	1560935695
27	0	US	1409503675
28	2280	US	1478990568
29	26	CA	1523307267
...	...	...	...
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212355	417	US	1538142145
212356	1090	US	1414018735
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212359	1501	US	1428699369
212360	1748	CA	1454447137
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212364	7601	US	1397593281
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4                     $                    True  ...
5                     $                    True  ...
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7                                         False  ...
8                     $                    True  ...
9                     $                    True  ...
10                                        False  ...
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13                    $                    True  ...
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25                    $                    True  ...
26                    č                   False  ...
27                    $                    True  ...
28                    $                    True  ...
29                    $                    True  ...
...                 ...                     ...  ...
212348                                    False  ...
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```
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                                                      slug  \
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1                                                   simbin
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5                                               love-story
6        mens-athleisure-innovative-fashion-sportswear-...
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8                                    detroit-revue-concert
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10                                          room-escape-vip
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12                        we-wish-you-a-merry-rockin-christmas
13                               gulcher-records-hat-trick
14                                               bush-pilot
15                                        loftlands-new-album
16                             methuselah-speaks-records-0
```

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20                                          junk-in-your-trunkstm
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25                     lets-get-needloves-records-spinning
26             myhereafter-interactive-online-memorials
27                                 elsie-digital-broadcasting
28                                 antimatter-fuel-production
29                             alfie-and-gaston-the-dog-cafe
...                                                        ...
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212366                             the-kj52-documentary
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212368               futter-fur-franzosische-bulldoggen
212369                     special-measures-a-one-act-play
212370     potato-salad-thats-better-than-that-other-guys
212371   manono-samoa-family-portrait-and-photography-book
212372         leave-me-like-you-found-me-finishing-funds
212373   zeez-worlds-first-smart-and-affordable-sleep-mask
212374   leafbox-concept-10-offgrid-pop-up-event-and-re...
212375                                 q2q-comics-volume-1
212376   the-positions-and-situations-project-ebcf-matc...
212377                             maranatha-short-film


                                       source_url  spotlight  \
0        https://www.kickstarter.com/discover/categorie...      False
1        https://www.kickstarter.com/discover/categorie...      False
```

2	https://www.kickstarter.com/discover/categorie...	False
3	https://www.kickstarter.com/discover/categorie...	True
4	https://www.kickstarter.com/discover/categorie...	False
5	https://www.kickstarter.com/discover/categorie...	False
6	https://www.kickstarter.com/discover/categorie...	False
7	https://www.kickstarter.com/discover/categorie...	False
8	https://www.kickstarter.com/discover/categorie...	False
9	https://www.kickstarter.com/discover/categorie...	True
10	https://www.kickstarter.com/discover/categorie...	False
11	https://www.kickstarter.com/discover/categorie...	True
12	https://www.kickstarter.com/discover/categorie...	True
13	https://www.kickstarter.com/discover/categorie...	True
14	https://www.kickstarter.com/discover/categorie...	False
15	https://www.kickstarter.com/discover/categorie...	True
16	https://www.kickstarter.com/discover/categorie...	False
17	https://www.kickstarter.com/discover/categorie...	False
18	https://www.kickstarter.com/discover/categorie...	False
19	https://www.kickstarter.com/discover/categorie...	False
20	https://www.kickstarter.com/discover/categorie...	True
21	https://www.kickstarter.com/discover/categorie...	True
22	https://www.kickstarter.com/discover/categorie...	False
23	https://www.kickstarter.com/discover/categorie...	False
24	https://www.kickstarter.com/discover/categorie...	False
25	https://www.kickstarter.com/discover/categorie...	True
26	https://www.kickstarter.com/discover/categorie...	False
27	https://www.kickstarter.com/discover/categorie...	False
28	https://www.kickstarter.com/discover/categorie...	True
29	https://www.kickstarter.com/discover/categorie...	False
...	...	...
212348	https://www.kickstarter.com/discover/categorie...	False
212349	https://www.kickstarter.com/discover/categorie...	True
212350	https://www.kickstarter.com/discover/categorie...	True
212351	https://www.kickstarter.com/discover/categorie...	True
212352	https://www.kickstarter.com/discover/categorie...	False
212353	https://www.kickstarter.com/discover/categorie...	False
212354	https://www.kickstarter.com/discover/categorie...	True
212355	https://www.kickstarter.com/discover/categorie...	True
212356	https://www.kickstarter.com/discover/categorie...	True
212357	https://www.kickstarter.com/discover/categorie...	True
212358	https://www.kickstarter.com/discover/categorie...	True
212359	https://www.kickstarter.com/discover/categorie...	True
212360	https://www.kickstarter.com/discover/categorie...	True
212361	https://www.kickstarter.com/discover/categorie...	True
212362	https://www.kickstarter.com/discover/categorie...	True
212363	https://www.kickstarter.com/discover/categorie...	True
212364	https://www.kickstarter.com/discover/categorie...	True
212365	https://www.kickstarter.com/discover/categorie...	True
212366	https://www.kickstarter.com/discover/categorie...	True

```
212367   https://www.kickstarter.com/discover/categorie...        True
212368   https://www.kickstarter.com/discover/categorie...        False
212369   https://www.kickstarter.com/discover/categorie...        True
212370   https://www.kickstarter.com/discover/categorie...        True
212371   https://www.kickstarter.com/discover/categorie...        False
212372   https://www.kickstarter.com/discover/categorie...        True
212373   https://www.kickstarter.com/discover/categorie...        False
212374   https://www.kickstarter.com/discover/categorie...        False
212375   https://www.kickstarter.com/discover/categorie...        True
212376   https://www.kickstarter.com/discover/categorie...        True
212377   https://www.kickstarter.com/discover/categorie...        True

         staff_pick       state  state_changed_at  static_usd_rate  \
0             False    canceled        1485878182         1.000000
1             False      failed        1473524887         1.098901
2             False    canceled        1429360155         1.000000
3             False  successful        1467648766         1.000000
4             False      failed        1399697848         1.000000
5             False      failed        1379104056         1.000000
6             False      failed        1543262049         1.281307
7             False      failed        1494225191         1.064353
8             False      failed        1378828200         1.000000
9             False  successful        1459948483         1.000000
10            False      failed        1486503249         1.044880
11            False  successful        1443934368         1.000000
12            False  successful        1370999595         1.000000
13            False  successful        1432679830         1.000000
14            False   suspended        1422045322         1.000000
15            False  successful        1338035606         1.000000
16            False    canceled        1467128365         1.000000
17            False      failed        1539809566         1.000000
18            False      failed        1464365994         1.450493
19            False      failed        1507835083         1.000000
20            False  successful        1530136720         1.000000
21            False  successful        1492439696         0.750948
22             True      failed        1446415216         1.515586
23            False      failed        1498010402         1.000000
24            False      failed        1444664263         1.105066
25            False  successful        1464919270         1.000000
26            False        live        1561047260         1.256182
27            False      failed        1412547578         1.000000
28            False  successful        1480658968         1.000000
29            False      failed        1528499378         0.781800
...             ...         ...               ...              ...
212348        False      failed        1555622384         1.133532
212349        False  successful        1551345671         1.320242
212350         True  successful        1407960010         1.708117
212351        False  successful        1496920864         1.059100
```

```
212352    False      failed    1406418015          1.000000
212353    False      failed    1555160817          0.127384
212354    False  successful    1449975600          1.000000
212355    False  successful    1545166748          1.000000
212356    False  successful    1416752843          1.000000
212357     True  successful    1426712413          1.000000
212358    False  successful    1470245156          1.000000
212359    False  successful    1433865912          1.000000
212360    False  successful    1458561601          0.715168
212361    False  successful    1430950513          1.000000
212362     True  successful    1441467517          1.094042
212363    False  successful    1367560741          1.000000
212364    False  successful    1401911135          1.000000
212365    False  successful    1445532984          1.000000
212366    False  successful    1507817099          1.000000
212367     True  successful    1521181423          1.000000
212368    False      failed    1540288557          1.175779
212369    False  successful    1557003788          1.313817
212370    False  successful    1407427744          1.000000
212371     True      failed    1539026211          1.000000
212372     True  successful    1326921406          1.000000
212373    False    canceled    1526567811          1.000000
212374    False      failed    1526400870          0.782943
212375    False  successful    1448946001          1.000000
212376    False  successful    1542959940          1.000000
212377    False  successful    1488520802          1.000000

                                              urls    usd_pledged  \
0      {"web":{"project":"https://www.kickstarter.com...    5528.000000
1      {"web":{"project":"https://www.kickstarter.com...       0.000000
2      {"web":{"project":"https://www.kickstarter.com...       0.000000
3      {"web":{"project":"https://www.kickstarter.com...    1782.000000
4      {"web":{"project":"https://www.kickstarter.com...     100.000000
5      {"web":{"project":"https://www.kickstarter.com...     265.000000
6      {"web":{"project":"https://www.kickstarter.com...       2.562614
7      {"web":{"project":"https://www.kickstarter.com...     553.463513
8      {"web":{"project":"https://www.kickstarter.com...       0.000000
9      {"web":{"project":"https://www.kickstarter.com...    7001.000000
10     {"web":{"project":"https://www.kickstarter.com...     679.171786
11     {"web":{"project":"https://www.kickstarter.com...     241.000000
12     {"web":{"project":"https://www.kickstarter.com...    5301.000000
13     {"web":{"project":"https://www.kickstarter.com...    1522.660000
14     {"web":{"project":"https://www.kickstarter.com...       0.000000
15     {"web":{"project":"https://www.kickstarter.com...    8909.540000
16     {"web":{"project":"https://www.kickstarter.com...       0.000000
17     {"web":{"project":"https://www.kickstarter.com...     556.000000
18     {"web":{"project":"https://www.kickstarter.com...       0.000000
19     {"web":{"project":"https://www.kickstarter.com...      16.000000
```

```
20        {"web":{"project":"https://www.kickstarter.com...      9013.000000
21        {"web":{"project":"https://www.kickstarter.com...      8618.630999
22        {"web":{"project":"https://www.kickstarter.com...    119674.800519
23        {"web":{"project":"https://www.kickstarter.com...      2347.000000
24        {"web":{"project":"https://www.kickstarter.com...        12.155730
25        {"web":{"project":"https://www.kickstarter.com...     12134.000000
26        {"web":{"project":"https://www.kickstarter.com...        89.188921
27        {"web":{"project":"https://www.kickstarter.com...         0.000000
28        {"web":{"project":"https://www.kickstarter.com...      2280.000000
29        {"web":{"project":"https://www.kickstarter.com...        27.362990
...       ...                                                   ...
212348    {"web":{"project":"https://www.kickstarter.com...       332.124987
212349    {"web":{"project":"https://www.kickstarter.com...      2879.447409
212350    {"web":{"project":"https://www.kickstarter.com...     11013.938223
212351    {"web":{"project":"https://www.kickstarter.com...        59.309594
212352    {"web":{"project":"https://www.kickstarter.com...      4036.000000
212353    {"web":{"project":"https://www.kickstarter.com...       787.745624
212354    {"web":{"project":"https://www.kickstarter.com...      3669.000000
212355    {"web":{"project":"https://www.kickstarter.com...       417.000000
212356    {"web":{"project":"https://www.kickstarter.com...      1090.000000
212357    {"web":{"project":"https://www.kickstarter.com...      5109.000000
212358    {"web":{"project":"https://www.kickstarter.com...       500.000000
212359    {"web":{"project":"https://www.kickstarter.com...      1501.000000
212360    {"web":{"project":"https://www.kickstarter.com...      1631.298048
212361    {"web":{"project":"https://www.kickstarter.com...      4221.000000
212362    {"web":{"project":"https://www.kickstarter.com...      8232.663266
212363    {"web":{"project":"https://www.kickstarter.com...      8075.120000
212364    {"web":{"project":"https://www.kickstarter.com...      7601.000000
212365    {"web":{"project":"https://www.kickstarter.com...     40472.000000
212366    {"web":{"project":"https://www.kickstarter.com...     12485.000000
212367    {"web":{"project":"https://www.kickstarter.com...     18291.000000
212368    {"web":{"project":"https://www.kickstarter.com...         3.527337
212369    {"web":{"project":"https://www.kickstarter.com...       792.231663
212370    {"web":{"project":"https://www.kickstarter.com...        15.000000
212371    {"web":{"project":"https://www.kickstarter.com...      4428.000000
212372    {"web":{"project":"https://www.kickstarter.com...     10626.000000
212373    {"web":{"project":"https://www.kickstarter.com...     18545.000000
212374    {"web":{"project":"https://www.kickstarter.com...       846.361502
212375    {"web":{"project":"https://www.kickstarter.com...     40383.000000
212376    {"web":{"project":"https://www.kickstarter.com...      5664.800000
212377    {"web":{"project":"https://www.kickstarter.com...      5500.000000

          usd_type
0         domestic
1         domestic
2         domestic
3         domestic
4         domestic
```

15

```
5        domestic
6        domestic
7        domestic
8        domestic
9        domestic
10       domestic
11       domestic
12       domestic
13       domestic
14       domestic
15       domestic
16       domestic
17       domestic
18       domestic
19       domestic
20       domestic
21       domestic
22       domestic
23       domestic
24       domestic
25       domestic
26       domestic
27       domestic
28       domestic
29       domestic
...          ...
212348   domestic
212349   domestic
212350   domestic
212351   domestic
212352   domestic
212353   domestic
212354   domestic
212355   domestic
212356   domestic
212357   domestic
212358   domestic
212359   domestic
212360   domestic
212361   domestic
212362   domestic
212363   domestic
212364   domestic
212365   domestic
212366   domestic
212367   domestic
212368   domestic
212369   domestic
```

```
212370  domestic
212371  domestic
212372  domestic
212373  domestic
212374  domestic
212375  domestic
212376  domestic
212377  domestic


[212378 rows x 37 columns]
```

My first impression on the data is, that we got a lot of useful information. However, I also notice that I am unable to comprehend the information ad-hoc. There are quite some JSON strings that were insufficiently extracted from the website. To gain a better understanding, I will need to apply programmatic assessment techniques to this data set.

```
In [4]: kickstarter.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 212378 entries, 0 to 212377
Data columns (total 37 columns):
backers_count            212378 non-null int64
blurb                    212370 non-null object
category                 212378 non-null object
converted_pledged_amount 212378 non-null int64
country                  212378 non-null object
created_at               212378 non-null int64
creator                  212378 non-null object
currency                 212378 non-null object
currency_symbol          212378 non-null object
currency_trailing_code   212378 non-null bool
current_currency         212378 non-null object
deadline                 212378 non-null int64
disable_communication    212378 non-null bool
friends                  204 non-null object
fx_rate                  212378 non-null float64
goal                     212378 non-null float64
id                       212378 non-null int64
is_backing               204 non-null object
is_starrable             212378 non-null bool
is_starred               204 non-null object
launched_at              212378 non-null int64
location                 212159 non-null object
name                     212378 non-null object
permissions              204 non-null object
photo                    212378 non-null object
pledged                  212378 non-null float64
profile                  212378 non-null object
```

```
slug                       212378 non-null object
source_url                 212378 non-null object
spotlight                  212378 non-null bool
staff_pick                 212378 non-null bool
state                      212378 non-null object
state_changed_at           212378 non-null int64
static_usd_rate            212378 non-null float64
urls                       212378 non-null object
usd_pledged                212378 non-null float64
usd_type                   212258 non-null object
dtypes: bool(5), float64(5), int64(7), object(20)
memory usage: 52.9+ MB
```

In [5]: *# find duplicated projects*
        kickstarter[kickstarter.id.duplicated()].info()

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 27240 entries, 1609 to 212376
Data columns (total 37 columns):
backers_count              27240 non-null int64
blurb                      27240 non-null object
category                   27240 non-null object
converted_pledged_amount   27240 non-null int64
country                    27240 non-null object
created_at                 27240 non-null int64
creator                    27240 non-null object
currency                   27240 non-null object
currency_symbol            27240 non-null object
currency_trailing_code     27240 non-null bool
current_currency           27240 non-null object
deadline                   27240 non-null int64
disable_communication      27240 non-null bool
friends                    102 non-null object
fx_rate                    27240 non-null float64
goal                       27240 non-null float64
id                         27240 non-null int64
is_backing                 102 non-null object
is_starrable               27240 non-null bool
is_starred                 102 non-null object
launched_at                27240 non-null int64
location                   27238 non-null object
name                       27240 non-null object
permissions                102 non-null object
photo                      27240 non-null object
pledged                    27240 non-null float64
profile                    27240 non-null object
slug                       27240 non-null object
```

```
source_url                27240 non-null object
spotlight                 27240 non-null bool
staff_pick                27240 non-null bool
state                     27240 non-null object
state_changed_at          27240 non-null int64
static_usd_rate           27240 non-null float64
urls                      27240 non-null object
usd_pledged               27240 non-null float64
usd_type                  27181 non-null object
dtypes: bool(5), float64(5), int64(7), object(20)
memory usage: 7.0+ MB
```

In [6]: *# assess composition of catgory*
      `kickstarter[kickstarter.index == 192044]['category'][192044]`

Out[6]: `'{"id":51,"name":"Software","slug":"technology/software","position":11,"parent_id":16,"`

In [7]: *# assess category example with missing subcategory*
      `kickstarter[kickstarter.index == 210071]['category'][210071]`

Out[7]: `'{"id":1,"name":"Art","slug":"art","position":1,"color":16760235,"urls":{"web":{"disco`

In [8]: *# assess composition of blurb*
      `kickstarter[kickstarter.index == 22954]['blurb'][22954]`

Out[8]: `"Separating friends from enemies is hard enough, but when the city is at stake, even sp`

In [9]: *# show projects with missing blurb, they were almost all canceled*
      `kickstarter[kickstarter.blurb.isna()]`

Out[9]:
```
        backers_count blurb  \
39268               0   NaN
68694              39   NaN
77878               0   NaN
91956             242   NaN
104928              0   NaN
137586              2   NaN
139968              0   NaN
160790              0   NaN


                                          category  \
39268    {"id":20,"name":"Conceptual Art","slug":"art/c...
68694    {"id":269,"name":"Ready-to-wear","slug":"fashi...
77878    {"id":20,"name":"Conceptual Art","slug":"art/c...
91956    {"id":339,"name":"Sound","slug":"technology/so...
104928   {"id":286,"name":"Spaces","slug":"theater/spac...
137586   {"id":351,"name":"Printing","slug":"crafts/pri...
139968   {"id":21,"name":"Digital Art","slug":"art/digi...
```

```
160790  {"id":311,"name":"Food Trucks","slug":"food/fo...

        converted_pledged_amount country  created_at  \
39268                          0      US  1424103554
68694                       8675      DE  1504364375
77878                          0      US  1331063276
91956                      54599      GB  1435830664
104928                         0      US  1449537429
137586                        20      US  1406991938
139968                         0      US  1509679461
160790                         0      US  1473363868

                                            creator currency  \
39268    {"id":1316410093,"name":"Rumi Forum","slug":"i...      USD
68694    {"id":1303591875,"name":"Annabelle Deisler","i...      EUR
77878    {"id":79887943,"name":"Brian Mercer","is_regis...      USD
91956    {"id":161070731,"name":"ACWorldwide","slug":"a...      GBP
104928   {"id":376626888,"name":"Amanda Donnadio (delet...      USD
137586   {"id":2029667279,"name":"Danger Grills","slug"...      USD
139968   {"id":1454907110,"name":"moe","is_registered":...      USD
160790   {"id":874463436,"name":"LeMae Fitzwater","is_r...      USD

        currency_symbol  currency_trailing_code  ...  \
39268                 $                    True  ...
68694                                      False  ...
77878                 $                    True  ...
91956                 č                   False  ...
104928                $                    True  ...
137586                $                    True  ...
139968                $                    True  ...
160790                $                    True  ...

                                               slug  \
39268    international-festival-of-language-and-culture
68694                        serious-business-collection
77878                                       the-lineup-0
91956                        star-wars-bluetooth-speakers
104928                     long-island-school-auditorium
137586              online-sticker-book-vending-machine
139968                                        charivari
160790                       foragers-cuisine-food-truck

                                          source_url  spotlight  \
39268    https://www.kickstarter.com/discover/categorie...      False
68694    https://www.kickstarter.com/discover/categorie...      False
77878    https://www.kickstarter.com/discover/categorie...      False
91956    https://www.kickstarter.com/discover/categorie...      False
104928   https://www.kickstarter.com/discover/categorie...      False
```

```
137586  https://www.kickstarter.com/discover/categorie...      False
139968  https://www.kickstarter.com/discover/categorie...      False
160790  https://www.kickstarter.com/discover/categorie...      False


        staff_pick      state  state_changed_at  static_usd_rate  \
39268        False   canceled        1424449267         1.000000
68694        False     failed        1507625190         1.203700
77878        False   canceled        1331581327         1.000000
91956        False   canceled        1443825021         1.516337
104928       False   canceled        1449571384         1.000000
137586       False   canceled        1408333920         1.000000
139968       False     failed        1515800048         1.000000
160790       False   canceled        1473968146         1.000000


                                                     urls   usd_pledged  \
39268   {"web":{"project":"https://www.kickstarter.com...      0.000000
68694   {"web":{"project":"https://www.kickstarter.com...   8873.674115
77878   {"web":{"project":"https://www.kickstarter.com...      0.000000
91956   {"web":{"project":"https://www.kickstarter.com...  54676.079907
104928  {"web":{"project":"https://www.kickstarter.com...      0.000000
137586  {"web":{"project":"https://www.kickstarter.com...     20.000000
139968  {"web":{"project":"https://www.kickstarter.com...      0.000000
160790  {"web":{"project":"https://www.kickstarter.com...      0.000000


        usd_type
39268   domestic
68694   domestic
77878   domestic
91956   domestic
104928  domestic
137586  domestic
139968  domestic
160790  domestic

[8 rows x 37 columns]
```

In [10]: # show values of country values
         kickstarter.country.value_counts()

Out[10]: US   149350
         GB   23816
         CA   9960
         AU   5002
         DE   3628
         FR   2862
         MX   2524
         IT   2472
         ES   2120
```

```
        NL     1838
        SE     1465
        HK     1192
        NZ      947
        DK      940
        SG      753
        CH      709
        IE      672
        BE      602
        NO      516
        AT      509
        JP      432
        LU       69
        Name: country, dtype: int64
```

In [11]: *# assess composition of location*
kickstarter[['country', 'location']]

Out[11]:

	country	location
0	US	{"id":2486982,"name":"St. Louis","slug":"st-lo...
1	ES	{"id":753692,"name":"Barcelona","slug":"barcel...
2	US	{"id":2396395,"name":"Eastern","slug":"eastern...
3	US	{"id":2356940,"name":"Athens","slug":"athens-g...
4	US	{"id":2441116,"name":"Logan","slug":"logan-ut"...
5	US	{"id":2503713,"name":"Tallahassee","slug":"tal...
6	GB	{"id":32562,"name":"Preston","slug":"preston-l...
7	FR	{"id":29332634,"name":"France","slug":"france-...
8	US	{"id":2391585,"name":"Detroit","slug":"detroit...
9	US	{"id":2459115,"name":"New York","slug":"new-yo...
10	ES	{"id":753692,"name":"Barcelona","slug":"barcel...
11	US	{"id":2487956,"name":"San Francisco","slug":"s...
12	US	{"id":2381475,"name":"Cleveland","slug":"cleve...
13	US	{"id":2466256,"name":"Orlando","slug":"orlando...
14	US	{"id":2412843,"name":"Grand Rapids","slug":"gr...
15	US	{"id":2369668,"name":"Brodhead","slug":"brodhe...
16	US	{"id":2413753,"name":"Green Bay","slug":"green...
17	US	{"id":2467662,"name":"Palm Bay","slug":"palm-b...
18	GB	{"id":11490,"name":"Aylesbury","slug":"aylesbu...
19	US	{"id":2423203,"name":"Hollister","slug":"holli...
20	US	{"id":2459115,"name":"New York","slug":"new-yo...
21	CA	{"id":8676,"name":"Edmonton","slug":"edmonton-...
22	GB	{"id":44418,"name":"London","slug":"london-gb"...
23	US	{"id":2488867,"name":"Santa Fe","slug":"santa-...
24	NL	{"id":733075,"name":"Rotterdam","slug":"rotter...
25	US	{"id":2471217,"name":"Philadelphia","slug":"ph...
26	GB	{"id":40335,"name":"Whitstable","slug":"whitst...
27	US	{"id":2466256,"name":"Orlando","slug":"orlando...
28	US	{"id":2516820,"name":"West Chicago","slug":"we...

```
       29        CA   {"id":55855881,"name":"District d'Hochelaga","...
      ...        ...                                               ...
   212348        IT   {"id":715496,"name":"Florence","slug":"florenc...
   212349        GB   {"id":44418,"name":"London","slug":"london-gb"...
   212350        GB   {"id":44418,"name":"London","slug":"london-gb"...
   212351        BE   {"id":968019,"name":"Brussels","slug":"brussel...
   212352        US   {"id":2357536,"name":"Austin","slug":"austin-t...
   212353        HK   {"id":2165352,"name":"Hong Kong","slug":"hong-...
   212354        US   {"id":2486982,"name":"St. Louis","slug":"st-lo...
   212355        US   {"id":2412843,"name":"Grand Rapids","slug":"gr...
   212356        US   {"id":2407207,"name":"Fredonia","slug":"fredon...
   212357        US   {"id":2456340,"name":"Munising","slug":"munisi...
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   212359        US   {"id":2355326,"name":"Appleton","slug":"applet...
   212360        CA   {"id":76279,"name":"Sabaneta","slug":"sabaneta...
   212361        US   {"id":2490383,"name":"Seattle","slug":"seattle...
   212362        FR   {"id":12671976,"name":"Valbonne","slug":"valbo...
   212363        US   {"id":2477080,"name":"Provo","slug":"provo-ut"...
   212364        US   {"id":2357536,"name":"Austin","slug":"austin-t...
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   212375        US   {"id":2372860,"name":"Frederick","slug":"frede...
   212376        US   {"id":2463583,"name":"Oakland","slug":"oakland...
   212377        US   {"id":2357536,"name":"Austin","slug":"austin-t...

   [212378 rows x 2 columns]
```

In [12]: # assess composition of creator
         kickstarter[kickstarter.index == 100156]['creator'][100156]

Out[12]: '{"id":171726442,"name":"Hetty ten Holt","slug":"gastvrijorganiseren","is_registered"

In [13]: # assess currency
         kickstarter.currency.value_counts()

Out[13]: USD   149350
         GBP   23816
         EUR   14772
         CAD   9960
         AUD   5002
         MXN   2524

```
        SEK       1465
        HKD       1192
        NZD        947
        DKK        940
        SGD        753
        CHF        709
        NOK        516
        JPY        432
        Name: currency, dtype: int64
```

In [14]: *# assess currency_symbol*
         kickstarter.currency_symbol.value_counts()

Out[14]: $ 169728
         č   23816
                  14772
         kr   2921
         Fr   709
         ě   432
         Name: currency_symbol, dtype: int64

In [15]: *# assess current currency*
         kickstarter.current_currency.value_counts()

Out[15]: USD   212258
         CAD   48
         NZD   36
         SGD   12
         HKD   12
         EUR   12
         Name: current_currency, dtype: int64

In [16]: *# assess fx_rate*
         kickstarter.fx_rate.value_counts()

Out[16]: 1.000000   149279
         1.243823   16308
         1.123945   10241
         1.241500   7501
         0.766388   6677
         1.121383   4515
         0.703082   3453
         0.764765   3274
         0.052443   1692
         0.700985   1545
         0.106855   1027
         0.052362   832
         0.127989   786
         0.150507   661

                        24
```

```
0.674044        621
0.735756        538
1.014894        502
0.106453        436
0.127997        402
0.116524        361
0.671022        326
0.009283        295
0.150179        278
0.735109        215
1.012785        206
0.116516        155
0.009245        137
1.483582         24
1.304822         21
1.360343         10
1.307592          7
7.812712          7
0.891756          7
1.466549          6
0.681983          3
1.137000          3
1.667465          3
1.466311          3
0.917397          3
1.845313          3
8.761042          3
1.688866          2
1.622967          2
7.912600          1
0.167003          1
0.916602          1
0.139427          1
0.114142          1
0.158529          1
0.223290          1
0.189882          1
Name: fx_rate, dtype: int64
```

In [17]: # assess static usd rate
         kickstarter.static_usd_rate.value_counts()

Out[17]: 1.000000   149351
         1.133748   76
         1.274202   69
         1.303101   61
         1.269503   56
         1.115888   55
```

| | |
|---|---|
| 1.273699 | 54 |
| 1.123154 | 54 |
| 1.123469 | 53 |
| 1.122209 | 52 |
| 1.137915 | 52 |
| 1.252199 | 50 |
| 1.303494 | 49 |
| 1.256915 | 47 |
| 1.257197 | 46 |
| 1.138650 | 46 |
| 1.122151 | 45 |
| 1.269856 | 45 |
| 1.330237 | 45 |
| 1.258101 | 44 |
| 1.123053 | 44 |
| 1.307198 | 43 |
| 1.714466 | 43 |
| 1.252194 | 43 |
| 1.378198 | 43 |
| 1.312465 | 43 |
| 1.158051 | 43 |
| 1.297308 | 43 |
| 1.128150 | 43 |
| 1.271399 | 42 |
| ... | |
| 0.127771 | 1 |
| 0.731984 | 1 |
| 0.167877 | 1 |
| 0.108585 | 1 |
| 0.680825 | 1 |
| 0.690387 | 1 |
| 1.597449 | 1 |
| 0.009006 | 1 |
| 0.167422 | 1 |
| 0.151681 | 1 |
| 1.035051 | 1 |
| 1.255792 | 1 |
| 0.733811 | 1 |
| 0.008851 | 1 |
| 0.113263 | 1 |
| 0.052516 | 1 |
| 0.144165 | 1 |
| 1.019960 | 1 |
| 0.944988 | 1 |
| 1.011127 | 1 |
| 1.036554 | 1 |
| 1.586662 | 1 |
| 0.121744 | 1 |

```
         0.116224          1
         0.939591          1
         0.053715          1
         0.785897          1
         0.692366          1
         1.004500          1
         0.733195          1
         Name: static_usd_rate, Length: 11890, dtype: int64
```

In [18]: # compare currency values
         kickstarter[['country','currency', 'currency_symbol', 'currency_trailing_code', 'goal

Out[18]:   country currency currency_symbol currency_trailing_code   goal \
         0   US   USD $ True   14000.0
         1   ES   EUR   False   20000.0
         2   US   USD $ True   5000.0
         3   US   USD $ True   1500.0
         4   US   USD $ True   10000.0
         5   US   USD $ True   2500.0
         6   GB   GBP   č   False   8000.0
         7   FR   EUR   False   6500.0
         8   US   USD $ True   35500.0
         9   US   USD $ True   6500.0
         10   ES   EUR   False   14000.0
         11   US   USD $ True   230.0
         12   US   USD $ True   5000.0
         13   US   USD $ True   1500.0
         14   US   USD $ True   56000.0
         15   US   USD $ True   8000.0
         16   US   USD $ True   4000.0
         17   US   USD $ True   25000.0
         18   GB   GBP   č   False   30000.0
         19   US   USD $ True   1500.0
         20   US   USD $ True   8000.0
         21   CA   CAD $ True   10000.0
         22   GB   GBP   č   False 600000.0
         23   US   USD $ True   6983.0
         24   NL   EUR   False   5000.0
         25   US   USD $ True   11750.0
         26   GB   GBP   č   False   3000.0
         27   US   USD $ True   3500.0
         28   US   USD $ True   2000.0
         29   CA   CAD $ True   7000.0
         ...   .
         212348   IT   EUR   False   10000.0
         212349   GB   GBP   č   False   1600.0
         212350   GB   GBP   č   False   6000.0
         212351   BE   EUR   False   50.0
```

212352	US	USD	$	True	15000.0
212353	HK	HKD	$	True	40000.0
212354	US	USD	$	True	3000.0
212355	US	USD	$	True	300.0
212356	US	USD	$	True	800.0
212357	US	USD	$	True	2000.0
212358	US	USD	$	True	500.0
212359	US	USD	$	True	1500.0
212360	CA	CAD	$	True	2250.0
212361	US	USD	$	True	3500.0
212362	FR	EUR		False	7500.0
212363	US	USD	$	True	7000.0
212364	US	USD	$	True	5000.0
212365	US	USD	$	True	40000.0
212366	US	USD	$	True	10000.0
212367	US	USD	$	True	18000.0
212368	DE	EUR		False	15000.0
212369	GB	GBP	č	False	500.0
212370	US	USD	$	True	15.0
212371	US	USD	$	True	6450.0
212372	US	USD	$	True	5000.0
212373	US	USD	$	True	61500.0
212374	CA	CAD	$	True	30000.0
212375	US	USD	$	True	12000.0
212376	US	USD	$	True	5500.0
212377	US	USD	$	True	5000.0

	usd_pledged	usd_type	converted_pledged_amount
0	5528.000000	domestic	5528
1	0.000000	domestic	0
2	0.000000	domestic	0
3	1782.000000	domestic	1782
4	100.000000	domestic	100
5	265.000000	domestic	265
6	2.562614	domestic	2
7	553.463513	domestic	570
8	0.000000	domestic	0
9	7001.000000	domestic	7001
10	679.171786	domestic	696
11	241.000000	domestic	241
12	5301.000000	domestic	5301
13	1522.660000	domestic	1522
14	0.000000	domestic	0
15	8909.540000	domestic	8909
16	0.000000	domestic	0
17	556.000000	domestic	556
18	0.000000	domestic	0
19	16.000000	domestic	16

```
20          9013.000000   domestic                  9013
21          8618.630999   domestic                  8628
22        119674.800519   domestic                121890
23          2347.000000   domestic                  2347
24            12.155730   domestic                    12
25         12134.000000   domestic                 12134
26            89.188921   domestic                    88
27             0.000000   domestic                     0
28          2280.000000   domestic                  2280
29            27.362990   domestic                    26
...                 ...        ...                   ...
212348       332.124987   domestic                   330
212349      2879.447409   domestic                  2901
212350     11013.938223   domestic                 10834
212351        59.309594   domestic                    63
212352      4036.000000   domestic                  4036
212353       787.745624   domestic                   788
212354      3669.000000   domestic                  3669
212355       417.000000   domestic                   417
212356      1090.000000   domestic                  1090
212357      5109.000000   domestic                  5109
212358       500.000000   domestic                   500
212359      1501.000000   domestic                  1501
212360      1631.298048   domestic                  1748
212361      4221.000000   domestic                  4221
212362      8232.663266   domestic                  8389
212363      8075.120000   domestic                  8075
212364      7601.000000   domestic                  7601
212365     40472.000000   domestic                 40472
212366     12485.000000   domestic                 12485
212367     18291.000000   domestic                 18291
212368         3.527337   domestic                     3
212369       792.231663   domestic                   794
212370        15.000000   domestic                    15
212371      4428.000000   domestic                  4428
212372     10626.000000   domestic                 10626
212373     18545.000000   domestic                 18545
212374       846.361502   domestic                   844
212375     40383.000000   domestic                 40383
212376      5664.800000   domestic                  5664
212377      5500.000000   domestic                  5500

[212378 rows x 8 columns]
```

In [19]: # assess disable communication
print(kickstarter.disable_communication.value_counts())
kickstarter[kickstarter.disable_communication == True]

```
False    211743
```

```
True        635
Name: disable_communication, dtype: int64
```

Out[19]:

	backers_count	blurb \
14	0	Help fund my life long dream of becoming a Bus...
126	1	I want to get my life back on track and and I ...
167	134	Imagine if you could physically step into your...
618	2	Hi! I am currently a Student Teacher in the st...
1521	0	-
1705	0	I am try to see the world and take pictures of...
1917	2	A BBQ in Salford, on 6th May, from 2pm in my b...
1974	1	I want to have a BBQ at my friends house. He t...
2120	4	I tried selling my boat after moving, no luck...
2141	1	The farm house we rent is being sold July 1st,...
2292	0	they are cars that can fly and are safer that ...
2396	4	I want to build a new Death Star. Then I can u...
2533	0	I have never owned a dog before, but I finally...
2940	14	Be Productive...Keep It Simple! My day t...
3175	7	Breadboard-compatible Arduino Clone ATMEGA328P
3415	0	Hand carved keychains with any message you des...
3548	0	I want a bulldog puppy! \nLook at the puppy, l...
4299	1	FTS Creations is a business that hand crafts a...
4364	117	We are creating an Modularized Drone . It will...
4383	1	The main goal of the project is to reach at le...
4513	3	An Attempt to Revive and Preserve Persian Noma...
4790	0	I need money so I can buy Jeremy and take him ...
4817	0	all i am looking for is a start. the moment to...
4830	4	Help need to build a council approved enclosur...
5062	4	Trying to send postcards without appearing to ...
5555	2	I need a drumset. And some lessons.
6330	0	I have recently filmed four music videos all o...
6344	8	A Science Fiction film filled with entertainme...
6678	1	Gaby esta estudiando 6 meses en la Universidad...
7027	216	Aesthetic and Ultralight Design | Carbon Nanot...
...	...	...
204120	0	100+ Apple Watch designs! Fully Customizable;\...
204264	0	Sharing memes with our backers for money to bu...
204408	1	Make learning fun and teaching easy.
204897	0	I want to go into the wilds to find and subseq...
204916	0	I want a Banana pudding milkshake but I can't ...
204940	12	From Bacon to potatoes chips, Enjoy your holid...
205346	73	Any love story will come to an end, but you kn...
205469	98	Wireless open ear sport headphones for safety,...
205753	0	This is my First time making a fursuit and i w...
206308	0	fabrication de rhum arrangé ananas victoria g...
207449	2	It's my 21st birthday, soo please help me rais...
207482	0	I am a Digital Artist, my specialty is Vintage...

```
207492              92  Portable eye massager with Graphene Far Infrar...
207512               0  I love gaming and programming. Imagine my dism...
208002               0  Since Christmas of 2010, I've been stuck with ...
208150               0  I'm currently in TN living in an unhealthy env...
208779               1  Overnight instagram celebrity Johnny Gerl one ...
210019               0  Benötigen ein Investment für Marketing - für e...
210069             781  We believe that EVERYONE should benefit from t...
210087               2  High quality, luxury style watches that look A...
210108               3  I need this chicken suit for reasons.\nIf I re...
210783               1  Tales from the Dream Hogs Volume 1 Dreamland h...
210926               1  The real Soldier story behind Captain America...
211186              10  The Automata Master is the first original bran...
211546             591  A customizable smart watch telling time up to ...
211683               2  I am creating a live doorway to knowledge abou...
211770               0       Revitalizing Palo Alto, one house at a time
211786               7    Raptor Watches- Affordable luxury sport watches
211913               0  I am a photographer and fashion stylist based ...
212144               0  So the whole idea is to build a monster machin...

                                                     category  \
14      {"id":336,"name":"Flight","slug":"technology/f...
126     {"id":361,"name":"Web","slug":"journalism/web"...
167     {"id":271,"name":"Live Games","slug":"games/li...
618     {"id":323,"name":"Academic","slug":"publishing...
1521    {"id":279,"name":"Places","slug":"photography/...
1705    {"id":279,"name":"Places","slug":"photography/...
1917    {"id":304,"name":"Bacon","slug":"food/bacon","...
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2120    {"id":271,"name":"Live Games","slug":"games/li...
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2396    {"id":340,"name":"Space Exploration","slug":"t...
2533    {"id":361,"name":"Web","slug":"journalism/web"...
2940    {"id":353,"name":"Stationery","slug":"crafts/s...
3175    {"id":334,"name":"DIY Electronics","slug":"tec...
3415    {"id":356,"name":"Woodworking","slug":"crafts/...
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4830    {"id":356,"name":"Woodworking","slug":"crafts/...
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5555    {"id":241,"name":"Metal","slug":"music/metal",...
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6344    {"id":301,"name":"Science Fiction","slug":"fil...
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```
6678    {"id":328,"name":"Young Adult","slug":"publish...
7027    {"id":339,"name":"Sound","slug":"technology/so...
...                                                   ...
204120  {"id":27,"name":"Graphic Design","slug":"desig...
204264  {"id":21,"name":"Digital Art","slug":"art/digi...
204408  {"id":338,"name":"Robots","slug":"technology/r...
204897  {"id":354,"name":"Taxidermy","slug":"crafts/ta...
204916  {"id":304,"name":"Bacon","slug":"food/bacon","...
204940  {"id":304,"name":"Bacon","slug":"food/bacon","...
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207492  {"id":341,"name":"Wearables","slug":"technolog...
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208150  {"id":308,"name":"Events","slug":"food/events"...
208779  {"id":21,"name":"Digital Art","slug":"art/digi...
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210108  {"id":254,"name":"Performances","slug":"dance/...
210783  {"id":285,"name":"Plays","slug":"theater/plays...
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        converted_pledged_amount country   created_at  \
14                             0      US   1421357956
126                            5      US   1425286575
167                        54418      US   1425250261
618                           42      US   1417904774
1521                           0      NL   1447361968
1705                           0      US   1441512785
1917                           7      GB   1493657480
1974                           1      US   1432689363
2120                           4      US   1436046901
2141                         100      US   1431444093
2292                           0      CA   1452237739
2396                          10      GB   1405011843
2533                           0      US   1417923026
```

32

2940	194	US	1479938375
3175	139	GB	1437880456
3415	0	US	1440475604
3548	0	AU	1427762249
4299	1	US	1518828219
4364	11122	HK	1521096589
4383	11	ES	1433680277
4513	13	CA	1537215268
4790	0	GB	1452538639
4817	0	GB	1427792413
4830	80	AU	1411819645
5062	28	SG	1474518015
5555	6	US	1472236600
6330	0	US	1390016424
6344	5299	US	1475888829
6678	4	MX	1485056701
7027	12679	ES	1501674857
...	...	...	...
204120	0	GB	1427654337
204264	0	GB	1436315525
204408	150	US	1402783621
204897	0	US	1441740820
204916	0	US	1447020493
204940	943	CA	1541245283
205346	3916	US	1557844048
205469	5181	CA	1559120066
205753	0	AU	1440383785
206308	0	FR	1450218822
207449	12	US	1426644234
207482	0	US	1504649379
207492	6449	HK	1542938108
207512	0	US	1437892724
208002	0	US	1447034228
208150	0	US	1407692809
208779	1	US	1427387091
210019	0	AT	1510244792
210069	42063	US	1427346219
210087	85	AU	1516526073
210108	27	CA	1413585843
210783	1	US	1416810701
210926	25	US	1503703410
211186	296	HK	1541408974
211546	172920	US	1490863587
211683	11	US	1430469637
211770	0	US	1419874229
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618     domestic
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210108  domestic
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       [635 rows x 37 columns]
```

In [20]: *# asses friends*
         print(kickstarter.friends.value_counts())

```
[]     204
Name: friends, dtype: int64
```

In [21]: *# assess duplicated projects with duplicated project ids*
         kickstarter[kickstarter.id.duplicated()]

Out[21]:   backers_count   blurb \
         1609   1682 PreShow allows you to see movies – in theaters...
         2018   91 Our idea is to provide a kit so you can make m...
         2800   356 Never forget to check the weather again. This ...
         3014   58   Hjälp Alastor kickstarta Klassikerserien!
         3168   42 A brand new concept album from KeyStone A Capp...
         3503   111 Documentary book about the lives of disabled p...
         3939   190 A local multiplayer video game where humans fl...
         4394   2   Psycho Skull Music Documentary World Tour (UK)
         4969   11 New lifstyle apparel brand startup. For anyone...
         5976   46 Andys Bread would love a cargo bike to deliver...
         6148   4 A photographic memoir of the waitresses of mam...
         6424   331 Odie is a small dog with a big heart and grand...
         6516   218 A photographic exploration of yoga's essence, ...
         6609   525 Banish plastic & embrace glass! Coming this Fa...
         6671   26 Photographic prints of my journey home to Scot...
         6835   41 The Philadelphia Evening Post is a vintage mag...
         7436   171 A female revenge horror about a teenage Mexica...
         7528   105 Beyond the headlines, CANDICE is an intimate p...
         7610   21 A short film, set in a suburban dystopian futu...
         7781   58 This is a sketchbook collecting the sketches, ...
         7953   109 MITD is a Large scale sculpture for Burning Ma...
         7981   18 Kurzfilm über das Leben und Scheitern eines ju...
         7988   65 3 creative dance shorts, various genres of dan...
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         8407   47 LP compilation per i 20 anni della Wallace Rec...
         8563   8 Get a beautiful, handmade authentic Portuguese...
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8836              95  Set of metal miniatures for fantasy games and ...
8838              95  A private print of my new book "God, Evolution...
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212198           136  An uplifting adventure story book that reveals...
212200            62  Help get our dancers up off a cement studio fl...
212210            32  Feature length psychological sci-fi thriller s...
212219            91  Feature film – A trip through social media, de...
212220            68  60mm hard enamel pins of the Eeveelutions! The...
212239            54  Pop-culture, political, and educational satire...
212241            59  A new hotel convention for Oklahoma to promote...
212242            36  fab figs are luscious, dried, golden figs – fi...
212243            17  Ein Psycho-Thriller über Schizophrenie: Wendy ...
212256            10  It's hard to come across student films that en...
212259           903  9 volumes with over 2,500 pages in deluxe 12"x...
212261            48    Made with trans hands, shipped with queer love!
212266           195  "Pigeons" is an experimental short animated fi...
212277            50              2019 Wall Calendar Inspired by Burt.
212281          5304  hard enamel pins featuring your favorite anima...
212291            78  A biting COMEDY SHORT FILM about BALDNESS.\r\n...
212292            38  Distributing a picture book that celebrates th...
212304            65  You are a treasure hunter who has to find clue...
212318           111  Moving and renovating our small-town dance stu...
212320            17  A nature documentary filmed in Dorset, England...
212322            61                            A Warrior's Beginning
212328            30  A children's adventure book centered around an...
212334            12  A documentary about a Mennonite filmmaker expl...
212338           367                              Giant Puppet Show
212340            57  DSYDT has a new home, Austin Dance Academy. We...
212346           101                 a documentary that will save lives
212349            32  A short lyrical dance film about a ballet danc...
212355            24  A specially cultivated selection of LGBT art a...
212369            35  Dean and Molly are two teachers, who have writ...
212376            70  Help an artist raise funds to earn an East Bay...

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10831	31	Royal Bastards is an area control, politically...
10849	44	A retro RPG adventure. Create your party and b...
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17618	13	Affordable, Stylish, Vintage design Watches - $48
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22772	346	An all-ages roleplaying game of cute, fierce k...
24284	208	A tiny protector for every collector
24377	22	Limited Edition 99pcs only, Unique automatic w...
24535	480	Slim-fit outdoor pants with stretch, articulat...
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186980	17	After six months of recording, jim and Richard...
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188173	21	A cafe with board games galore and fun to be h...
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201858	42	A conversationally engaging card game where YO...
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17507	$	True	...	
17618		False	...	
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17918	č	False	...	
21781	$	True	...	
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22772	$	True	...	
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185264	$	True	...	
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202536                 č               False  ...
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203764                 $                True  ...
203848                 č               False  ...
203920                 $                True  ...
204709                 č               False  ...
205225                 $                True  ...
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                                                        slug  \
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528          shasn-the-political-strategy-board-game-break-ks
3105              mark-one-apollo-11-limited-edition-space-pen
3386      multifunctional-super-slim-automatic-mechanica...
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8694             paranormal-detective-escape-from-the-80s
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9234      d20-random-extraplanar-encounter-generator-exc...
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10755                                    conan-savage-legends
10831                                          royal-bastards
10849                                  reverie-a-heroes-fate
11087     tabletop-worlds-altburg-stable-32mm-resin-cast...
13316                          grim-everyday-carry-tool-roll-wallet
13703     magnus-the-brave-2-a-bloody-fun-adventure-brea...
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17618                          cinturino-minimal-travel-watch
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21781     ub-e2-spherical-hi-fi-tws-loudspeaker-with-imp...
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26916                                  one-drunk-night-game
...                                                       ...
```

```
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185264       bad-boss-the-card-game-that-wont-get-you-fired
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187438   the-automatisk-a-modern-danish-designed-timepiece
187933    commitstrip-the-summer-of-code-a-book-about-love
188105                                             gatefall
188173                              decatur-board-game-cafe
191480          junkerdrome-televised-vehicular-deathsport
192070                                        royal-bastards
196567                                conan-savage-legends
196763                                 canine-kleptomaniacs
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199931                         once-we-moved-like-the-wind
200227              bow-down-a-take-that-battle-card-game
201858          mixed-company-break-kickstarter-edition
202514                                                goons
202536                            etherfields-board-game
202796          innsmouth-32-the-horror-movie-board-game
203764   wooden-watches-made-from-reclaimed-wood-and-st...
203848   lobsterbag-the-worlds-most-compact-key-fob-bag...
203920                     recyclable-elastic-lotion-pump
204709             transdimensional-4-and-graphic-novel
205225   pbow-world-war-bitch-1-break-kickstarter-grind...
208111   filepod-all-of-your-files-always-available-in-...
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208552                                        fill-the-nest
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181381   https://www.kickstarter.com/discover/categorie...    False
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8432      domestic
8694           NaN
9002      domestic
9234      domestic
10678     domestic
10755     domestic
10831     domestic
10849     domestic
11087          NaN
13316     domestic
13703     domestic
15852     domestic
17507     domestic
17618     domestic
```

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17802        domestic
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21781             NaN
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...               ...
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183723       domestic
185264  international
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187438       domestic
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203764       domestic
203848       domestic
203920       domestic
204709       domestic
205225       domestic
208111             NaN
208127       domestic
208552       domestic

[203 rows x 37 columns]
```

In [24]: # asses is starrable
kickstarter.is_starrable.value_counts()

Out[24]: False   206210

```
          True        6168
          Name: is_starrable, dtype: int64
```

In [25]: *# compare is starrable, is_backing and is_starred*
```
          kickstarter[(kickstarter.is_starred == False) | (kickstarter.is_starred == True)][['is
```

Out[25]:   is_backing is_starrable is_starred
```
          204        False        True        False
          509        False        True        False
          528        False        True        False
          3105       False        True        False
          3386       False        True        False
          8432       False        True        False
          8694       False        True        False
          9002       False        True        False
          9234       False        True        False
          10678      False        True        False
          10755      False        True        False
          10831      False        True        False
          10849      False        True        False
          11087      False        True        False
          13316      False        True        False
          13703      False        True        False
          15852      False        True        False
          17507      False        True        False
          17618      False        True        False
          17802      False        True        False
          17918      False        True        False
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          22237      False        True        False
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          24377      False        True        False
          24535      False        True        False
          24831      False        True        False
          26870      False        True        False
          26916      False        True        False
          ...         ...          ...          ...
          181381     False        True        False
          182309     False        True        False
          183723     False        True        False
          185264     False        True        False
          185377     False        True        False
          185785     False        True        False
          186980     False        True        False
          187438     False        True        False
          187933     False        True        False
          188105     False        True        False
```

```
        188173      False          True        False
        191480      False          True        False
        192070      False          True        False
        196567      False          True        False
        196763      False          True        False
        199168      False          True        False
        199931      False          True        False
        200227      False          True        False
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        205225      False          True        False
        208111      False          True        False
        208127      False          True        False
        208552      False          True        False

        [204 rows x 3 columns]

In [26]: # assess permission
         kickstarter.permissions.value_counts()

Out[26]: []     204
         Name: permissions, dtype: int64

In [27]: # compare ermission, is_backing and is_starrable
         kickstarter[kickstarter.permissions == "[]"][['friends', 'permissions', 'is_backing',

Out[27]:          friends permissions is_backing   is_starrable
         204         []          []        False           True
         509         []          []        False           True
         528         []          []        False           True
         3105        []          []        False           True
         3386        []          []        False           True
         8432        []          []        False           True
         8694        []          []        False           True
         9002        []          []        False           True
         9234        []          []        False           True
         10678       []          []        False           True
         10755       []          []        False           True
         10831       []          []        False           True
         10849       []          []        False           True
         11087       []          []        False           True
         13316       []          []        False           True
         13703       []          []        False           True
```

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17618	[]	[]	False	True
17802	[]	[]	False	True
17918	[]	[]	False	True
21781	[]	[]	False	True
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22772	[]	[]	False	True
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24377	[]	[]	False	True
24535	[]	[]	False	True
24831	[]	[]	False	True
26870	[]	[]	False	True
26916	[]	[]	False	True
...	...	...	...	...
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182309	[]	[]	False	True
183723	[]	[]	False	True
185264	[]	[]	False	True
185377	[]	[]	False	True
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203848	[]	[]	False	True
203920	[]	[]	False	True
204709	[]	[]	False	True
205225	[]	[]	False	True
208111	[]	[]	False	True
208127	[]	[]	False	True
208552	[]	[]	False	True

[204 rows x 4 columns]

```
In [28]:  # assess photo
          kickstarter[kickstarter.index == 1435]['photo'][1435]

Out[28]:  '{"key":"assets/011/496/795/1396b180874abd417f3dc9c987b15d79_original.jpg","full":"ht

In [29]:  # assess profile
          kickstarter[kickstarter.index == 1435]['profile'][1435]

Out[29]:  '{"id":508103,"project_id":508103,"state":"inactive","state_changed_at":1425915827,"na

In [30]:  # assess spotlight
          kickstarter.spotlight.value_counts()

Out[30]:  True      120950
          False      91428
          Name: spotlight, dtype: int64

In [31]:  # assess goals
          kickstarter.goal.sort_values()

Out[31]:  192795    1.000000e-02
          172742    1.000000e+00
          144883    1.000000e+00
          202490    1.000000e+00
          174668    1.000000e+00
          126453    1.000000e+00
          89168     1.000000e+00
          193039    1.000000e+00
          171527    1.000000e+00
          162031    1.000000e+00
          56783     1.000000e+00
          126002    1.000000e+00
          150882    1.000000e+00
          60902     1.000000e+00
          140890    1.000000e+00
          212043    1.000000e+00
          49478     1.000000e+00
          164869    1.000000e+00
          88900     1.000000e+00
          188956    1.000000e+00
          1583      1.000000e+00
          191230    1.000000e+00
          168363    1.000000e+00
          108002    1.000000e+00
          95524     1.000000e+00
          108828    1.000000e+00
          209164    1.000000e+00
          18902     1.000000e+00
          23311     1.000000e+00
```

```
112988    1.000000e+00
                    ...
155395    5.000000e+07
3011      5.000000e+07
192936    5.000000e+07
107414    5.500000e+07
2541      6.000000e+07
115889    6.800000e+07
144501    7.000000e+07
79796     7.300000e+07
80685     8.000000e+07
14549     9.000000e+07
16993     9.900000e+07
113469    1.000000e+08
140648    1.000000e+08
188236    1.000000e+08
133608    1.000000e+08
112827    1.000000e+08
133936    1.000000e+08
110904    1.000000e+08
102046    1.000000e+08
62491     1.000000e+08
185632    1.000000e+08
10610     1.000000e+08
102925    1.000000e+08
124581    1.000000e+08
13827     1.000000e+08
187708    1.000000e+08
61463     1.000000e+08
123107    1.000000e+08
129487    1.000000e+08
132233    1.000000e+08
Name: goal, Length: 212378, dtype: float64
```

In [32]: `# assess project with highest goals and lowest goals`
`kickstarter.iloc[[150690, 8407, 141159, 164989]]`

Out[32]:
```
        backers_count                                        blurb  \
150690             52  I am lucky enough to have been invited to atte...
8407               47  LP compilation per i 20 anni della Wallace Rec...
141159              0  This is a feature film about one man's search ...
164989            143  From the author of the award-winning Jim Morga...

                                                 category  \
150690  {"id":278,"name":"People","slug":"photography/...
8407    {"id":321,"name":"Punk","slug":"music/punk","p...
141159  {"id":293,"name":"Drama","slug":"film & video/...
164989  {"id":46,"name":"Children's Books","slug":"pub...
```

```
        converted_pledged_amount country   created_at  \
150690                      2401      GB   1479321086
8407                        3406      IT   1542878451
141159                         0      US   1468094944
164989                      6540      US   1470521755


                                          creator currency  \
150690  {"id":1542919473,"name":"Nayru Suicide","is_re...      GBP
8407     {"id":1081860162,"name":"Wallace Records","slu...      EUR
141159   {"id":900117272,"name":"Jimmy Andrews; Directo...      USD
164989   {"id":242477864,"name":"James Raney","is_regis...      USD


        currency_symbol  currency_trailing_code  ...  \
150690                č                   False  ...
8407                                      False  ...
141159                $                    True  ...
164989                $                    True  ...


                                              slug  \
150690          suicide-girls-argentina-shootfest-2017
8407                                       traccexx
141159                          a-journey-through-pines
164989  the-lord-of-the-wolves-an-epic-childrens-fantasy


                                            source_url  spotlight  \
150690  https://www.kickstarter.com/discover/categorie...       True
8407    https://www.kickstarter.com/discover/categorie...       True
141159  https://www.kickstarter.com/discover/categorie...      False
164989  https://www.kickstarter.com/discover/categorie...       True


       staff_pick        state  state_changed_at  static_usd_rate  \
150690      False   successful        1482515412         1.249059
8407         True   successful        1548932401         1.134776
141159      False       failed        1470690057         1.000000
164989      False   successful        1473815800         1.000000


                                             urls  usd_pledged  \
150690  {"web":{"project":"https://www.kickstarter.com...  2441.909407
8407    {"web":{"project":"https://www.kickstarter.com...  3360.072447
141159  {"web":{"project":"https://www.kickstarter.com...     0.000000
164989  {"web":{"project":"https://www.kickstarter.com...  6540.000000


       usd_type
150690  domestic
8407    domestic
141159  domestic
164989  domestic
```

```
            [4 rows x 37 columns]
```

The lowest project actually has a goal of USD 0. Due to database restriction it was saved as a very small number under USD 1. https://www.kickstarter.com/projects/jerry/loveland-round-6-a-force-more-powerful

```
In [33]:  # assess distribution of goals
          kickstarter.goal.value_counts()

Out[33]:  5000.00        15447
          10000.00       13527
          1000.00        10128
          3000.00         8668
          2000.00         8645
          500.00          8058
          15000.00        7298
          20000.00        6711
          2500.00         6452
          1500.00         6133
          25000.00        5097
          50000.00        4904
          4000.00         4641
          6000.00         4061
          30000.00        4010
          3500.00         3729
          8000.00         3457
          300.00          2701
          7000.00         2633
          12000.00        2591
          7500.00         2470
          100000.00       2451
          600.00          2103
          100.00          2052
          250.00          1935
          200.00          1927
          1200.00         1871
          35000.00        1705
          800.00          1687
          40000.00        1665
                          ...
          13050.00           1
          29011.00           1
          5205.00            1
          3978.00            1
          5218.00            1
          3637.00            1
          58191.00           1
```

```
18450.00         1
808.00           1
10447.00         1
34240.00         1
7270.00          1
1523.00          1
14537.00         1
10290.00         1
1672.00          1
465000.00        1
7255.00          1
13824.00         1
652.00           1
2972.00          1
1824.79          1
32850.00         1
1815.00          1
1333850.00       1
1333666.00       1
10417.00         1
20833.00         1
333300.00        1
40540.00         1
Name: goal, Length: 5192, dtype: int64
```

In [34]: # assess differences between converted pledged amount and usd pledged
         kickstarter[kickstarter['converted_pledged_amount'] != kickstarter['usd_pledged']][['n

Out[34]:   name \
         6   Athleisure - Innovative Fashion / Sportswear c...
         7   TRINAAD "The sound of three Worlds" new album
         10   ROOM ESCAPE VIP
         13   Gulcher Records Hat Trick
         15   Loftland's New Album!
         21   SEA Change Clothing Co. - Change Looks Good On...
         22   Moonspike | We're Going Back to the Moon
         24   The first "live" performance in an Holographi...
         26   MyHereAfter interactive online memorials
         29   Alfie & Gaston. The dog café.
         30   Filippo Dall'Asta's Debut Album - Mediterrasian
         33   A Slice of River
         36   'Tulip, my mother's favourite flower' - A Phot...
         37   TISKA London - Authentically British,Nordic In...
         39   CREATE AN ALBUM TOGETHER WITH US!!!
         40   Clever Cat Escapes
         41   Alpacoz - Alpaka Pullover
         42   Tailor made. Customized. Premier Leather Jackets
         44   Re-ARM for RAMPS, simple 32-bit upgrade
```

```
49                                          Glennström
51                          PHOOTOO, A Photography Book
52                          CoH2 Grand Championship Series
57                          Framing the World - Photobook
60                          Deepcover Jacket | Maunder XV
61      Basic T-shirts Made in Holland | Biological an...
63                             Masked; Follow the Rabbit.
65                                     Second Adolescence
68                              Rekoncyle - New Album 2014
72                                          INFUSE Tea Bar
79                                             berlinergeist
...                                                    ...
212291            CALVARIO: The Struggle Is REAL!!!
212292  Humbert Bear likes to doze - joy in the face o...
212297  Picturing the Industrial South Wales Valleys o...
212299                              Say Goodbye, Grace
212304    The VOC Treasure - Escape Game / At Home Mystery
212305          University First Year Film - Not My Bag
212311  PicKer- Soporte Porta Púas de Guitarra (Canceled)
212314  The Silver Knight (expansion to full time comm...
212316                     'Lab Rats' Short Horror Film
212320                        The Long Journey to Spring
212322                          Spartan Turtle: Book One
212330  Some Copics for a talented eleven year old, ne...
212331                            West Lakeland Smokery
212334                               I Am A Mennonite
212336        The Smart Bracelet - Perfect Christmas Gift
212341                                 My first exhibit
212345                                   Bosanske Ulice
212347  Around A Strand, showing the diversity of Lond...
212348    Laboratorio artigianale gioielli Soutache - 3D
212349                     Last Dance - Short Film Project
212350  Gill & Gill: a film comparing bouldering & sto...
212351                     Kortfilm 'Een liefdestheorie'
212353  ACACIA: Sterling silver and diamonds statement...
212360                                          Strayed
212362            En Proie - court-métrage / short film
212363  "TONGUE TIED" The first film depicting Bilingu...
212368  Mybullylove the first snack and meal for your ...
212369                  Special Measures: a one act play.
212374  LeafBox Concept 1.0 - Offgrid Pop-up Event & R...
212376  The Positions and Situations Project: EBCF Mat...

        converted_pledged_amount    usd_pledged
6                              2       2.562614
7                            570     553.463513
10                           696     679.171786
13                          1522    1522.660000
```

15	8909	8909.540000
21	8628	8618.630999
22	121890	119674.800519
24	12	12.155730
26	88	89.188921
29	26	27.362990
30	6220	6107.069659
33	588	590.660386
36	14370	14427.695807
37	7664	7801.327409
39	3027	3009.827472
40	1312	1329.540418
41	806	806.290435
42	42079	42079.500000
44	29134	29134.010000
49	1674	1674.566202
51	41	41.029452
52	8164	7743.797595
57	76	77.559736
60	21923	21307.638798
61	73	74.145015
63	2523	2499.646127
65	1610	1576.229078
68	8203	8135.459648
72	7449	7380.078580
79	76	76.319107
...	...	...
212291	8837	8860.465134
212292	6832	6935.229789
212297	2449	2328.253323
212299	9180	9180.010000
212304	5797	5754.523111
212305	153	153.721877
212311	362	353.603946
212314	4623	4529.637836
212316	7163	7407.213072
212320	842	848.754787
212322	5034	5034.730000
212330	322	309.258063
212331	431	435.594520
212334	1190	1201.329195
212336	218	219.058611
212341	61	62.800106
212345	1825	1778.014056
212347	383	388.582958
212348	330	332.124987
212349	2901	2879.447409
212350	10834	11013.938223

```
212351                                    63      59.309594
212353                                   788     787.745624
212360                                  1748    1631.298048
212362                                  8389    8232.663266
212363                                  8075    8075.120000
212368                                     3       3.527337
212369                                   794     792.231663
212374                                   844     846.361502
212376                                  5664    5664.800000

[70961 rows x 3 columns]
```

In [35]: # assess state
         kickstarter.state.value_counts()

Out[35]: successful   120950
         failed   75541
         canceled   8656
         live   6596
         suspended   635
         Name: state, dtype: int64

In [36]: # compare project status to spotlight and staff_pick
         statuses = ['successful', 'failed']
         bools = [(True, True), (True, False), (False, True), (False, False)]
         for status in statuses:
             print("\n", status, ":\n")
             for comb in bools:
                 df = kickstarter[kickstarter.state == status]
                 df = df[df.spotlight == comb[0]]
                 df = df[df.staff_pick == comb[1]]
                 print(comb[0], comb[1], ":", len(df))

 successful :

True True : 24203
True False : 96747
False True : 0
False False : 0

 failed :

True True : 0
True False : 0
False True : 2287
False False : 73254
```

Interestingly, all project that were awarded a Projects we love badge and and were put on a website in a spotlight succeeded. The same is true for all projects that were put only on the website. On the other hand all projects failed that didn't get any support or were only awarded a Projects we Love badge.

```
In [37]: # assess live projects
         kickstarter[kickstarter.state == "live"]

Out[37]:          backers_count                                         blurb  \
         26                   3  An online memorial site acting as a all in one...
         173                  1  To bring battle royale into a real life atmosp...
         204                  6  A strategy game with asymmetry of information ...
         224                  1  Wireless electromechanical water-skier/wake-bo...
         231                  1  Unoriginal premise of a dog who becomes a huma...
         234                  1  Revolutionizing the college experience using V...
         241                  1  A massive, online multiplayer videogame with a...
         249                  1  Production of the original anime. ...
         283                 93  Inspire young scholars with fun STEM activitie...
         285                 43  BECOME AN INVENTOR FOR A SUSTAINABLE FUTURE WI...
         293                463  A roleplaying game about exploring dangerous, ...
         301                  1  YOUR love for the sun will make this book. Let...
         318                 65  Think "Christmas TV Special" in gift book form...
         320                  1          Diseño y aplicaciones en la Industria.
         329                  1  Short film about the 80s with violence, love, ...
         335                  7  a tale told of a meeting at a crossroads, of a...
         359                 28    All sizes, round, oval, rectangular and square.
         382                 34                       A book about Louise Brooks
         399                  2  Un luogo per i bambini dove sperimentare il me...
         407                  1                            Interactive Mobile Tv
         429                408  Year 6 of Uncanny Magazine, now with higher pa...
         472                  1  Estoy creando una novela de ficcion en el gene...
         500                 21  Un mini-album de rap. Un E.P. intitulé ńPremie...
         509                 11  Charming Vault STL printable files for D&D ins...
         521                 21                    DVDs- Professionally replicated
         528                388  An epic game of politics, ethics, and strategy...
         534                  3  The premiere of a play about forced adoptions ...
         539                  1  A teenage boy gifted magical powers battles hi...
         572                 12  The story of a real life treasure hunter who's...
         591                 22  LA DOBLE MORAL, nos narra la complicada escena...
         ...                ...                                               ...
         210942               1  Entrepreneurs of Colours that have made an imp...
         210985               5  We want to give other local artists, like us t...
         211051              10  Two enamel pins; one of Suranne Jones as Anne ...
         211090               2  This is a themed Treasure Hunt that will be fi...
         211116               6  A music-video-microfilm to end street harassme...
         211190             170  Custom playing cards with a cosmic vibe, groun...
         211374               2  A 250 page hardback journal, with an infinite ...
         211411               7  A fully colored illustrated book about the Ven...
```

```
211456          78  A documentary about one of rock's most influen...
211471           7      An animated half-hour cartoon show for kids.
211483           1  Quality, organic, free-range, locally-harveste...
211494          16  A crossover between an art show, a pagan templ...
211680          20      Pendants that come to life! - A new variation
211713           1  A short documentary about women female rancher...
211780          34  Debacle es proyecto de cine que une talento me...
211814          35  Help us make a documentary about a summer cour...
211822           7  A Documentary of Kirah Zook's life story from ...
211856           1  I am working to foster the exchange of culture...
211861           3  A lullaby book that you can sing to your child...
211862          15      The opportunity for my first solo exhibition.
211884           1  An original horror cartoon serial. A 5 episode...
211920          15  Help us get our short film to festivals around...
211948          28  A Set of Enamel Pins Based on Early Chain Asse...
211964          32     A snackable kawaii sushi creatures enamel pin~
211990         371  A modernized tarot deck that is relatable to t...
212093          62  78 Tarot Cards based on beautiful posters from...
212152           8  A book and feature length documentary about th...
212170          31  Follow the story of the Democratic Candidate r...
212177         108  A Children's Biography of Transgender Heroes S...
212275         131  A 40 page Good Omens zine involving over 35 co...

                                                     category  \
26      {"id":260,"name":"Interactive Design","slug":"...
173     {"id":271,"name":"Live Games","slug":"games/li...
204     {"id":273,"name":"Playing Cards","slug":"games...
224     {"id":337,"name":"Gadgets","slug":"technology/...
231     {"id":11,"name":"Film & Video","slug":"film & ...
234     {"id":332,"name":"Apps","slug":"technology/app...
241     {"id":35,"name":"Video Games","slug":"games/vi...
249     {"id":29,"name":"Animation","slug":"film & vid...
283     {"id":46,"name":"Children's Books","slug":"pub...
285     {"id":35,"name":"Video Games","slug":"games/vi...
293     {"id":34,"name":"Tabletop Games","slug":"games...
301     {"id":45,"name":"Art Books","slug":"publishing...
318     {"id":46,"name":"Children's Books","slug":"pub...
320     {"id":323,"name":"Academic","slug":"publishing...
329     {"id":291,"name":"Action","slug":"film & video...
335     {"id":297,"name":"Horror","slug":"film & video...
359     {"id":270,"name":"Gaming Hardware","slug":"gam...
382     {"id":48,"name":"Nonfiction","slug":"publishin...
399     {"id":271,"name":"Live Games","slug":"games/li...
407     {"id":303,"name":"Television","slug":"film & v...
429     {"id":49,"name":"Periodicals","slug":"publishi...
472     {"id":47,"name":"Fiction","slug":"publishing/f...
500     {"id":39,"name":"Hip-Hop","slug":"music/hip-ho...
509     {"id":34,"name":"Tabletop Games","slug":"games...
```

```
521      {"id":301,"name":"Science Fiction","slug":"fil...
528      {"id":34,"name":"Tabletop Games","slug":"games...
534      {"id":285,"name":"Plays","slug":"theater/plays...
539      {"id":47,"name":"Fiction","slug":"publishing/f...
572      {"id":30,"name":"Documentary","slug":"film & v...
591      {"id":32,"name":"Shorts","slug":"film & video/...
...                                                    ...
210942   {"id":303,"name":"Television","slug":"film & v...
210985   {"id":23,"name":"Painting","slug":"art/paintin...
211051   {"id":345,"name":"DIY","slug":"crafts/diy","po...
211090   {"id":303,"name":"Television","slug":"film & v...
211116   {"id":290,"name":"Video Art","slug":"art/video...
211190   {"id":273,"name":"Playing Cards","slug":"games...
211374   {"id":45,"name":"Art Books","slug":"publishing...
211411   {"id":46,"name":"Children's Books","slug":"pub...
211456   {"id":30,"name":"Documentary","slug":"film & v...
211471   {"id":29,"name":"Animation","slug":"film & vid...
211483   {"id":1,"name":"Art","slug":"art","position":1...
211494   {"id":23,"name":"Painting","slug":"art/paintin...
211680   {"id":267,"name":"Jewelry","slug":"fashion/jew...
211713   {"id":30,"name":"Documentary","slug":"film & v...
211780   {"id":32,"name":"Shorts","slug":"film & video/...
211814   {"id":30,"name":"Documentary","slug":"film & v...
211822   {"id":30,"name":"Documentary","slug":"film & v...
211856   {"id":1,"name":"Art","slug":"art","position":1...
211861   {"id":46,"name":"Children's Books","slug":"pub...
211862   {"id":20,"name":"Conceptual Art","slug":"art/c...
211884   {"id":29,"name":"Animation","slug":"film & vid...
211920   {"id":32,"name":"Shorts","slug":"film & video/...
211948   {"id":22,"name":"Illustration","slug":"art/ill...
211964   {"id":21,"name":"Digital Art","slug":"art/digi...
211990   {"id":22,"name":"Illustration","slug":"art/ill...
212093   {"id":273,"name":"Playing Cards","slug":"games...
212152   {"id":30,"name":"Documentary","slug":"film & v...
212170   {"id":30,"name":"Documentary","slug":"film & v...
212177   {"id":46,"name":"Children's Books","slug":"pub...
212275   {"id":1,"name":"Art","slug":"art","position":1...

        converted_pledged_amount country   created_at  \
26                            88      GB   1560935695
173                            1      US   1561646415
204                          348      FR   1554459632
224                            1      US   1550170105
231                            0      CA   1559667747
234                            1      US   1531455533
241                            1      US   1561933248
249                            1      JP   1562217757
283                         3641      US   1561060191
```

285	3550	DE	1535628316
293	13689	GB	1549466091
301	1	JP	1558234663
318	2551	US	1559571396
320	0	MX	1562602349
329	0	MX	1559016744
335	1266	US	1559947755
359	113	FR	1562713416
382	1240	US	1560957217
399	12	IT	1561234082
407	1	US	1525478230
429	16780	US	1562809507
472	0	MX	1562741708
500	476	CA	1558108381
509	649	IT	1562919931
521	1105	US	1561322533
528	50415	US	1548053451
534	46	CA	1562340200
539	1	IE	1544163639
572	1137	US	1562114421
591	1380	MX	1561570155
...	...	...	...
210942	1	GB	1562137725
210985	191	US	1562882274
211051	207	CA	1560373395
211090	11	US	1556053324
211116	101	US	1562699688
211190	5607	US	1560261948
211374	13	GB	1561632106
211411	137	US	1555933875
211456	17164	US	1558960833
211471	2651	US	1562031375
211483	1	US	1561910258
211494	2179	NO	1548246733
211680	1191	GB	1562158074
211713	1	US	1561425673
211780	789	MX	1558839468
211814	4581	DK	1560619979
211822	476	US	1562384436
211856	1	US	1561335135
211861	81	US	1557205969
211862	912	GB	1560617136
211884	1	US	1561512967
211920	553	GB	1558272188
211948	583	US	1561034973
211964	3562	US	1559331854
211990	23705	US	1556910159
212093	1971	US	1562799894

```
212152                        226   CA  1561577093
212170                       7943   CA  1559839523
212177                       4628   US  1557321298
212275                       4141   GB  1562244036


                                            creator currency  \
26      {"id":1912022590,"name":"John mitchell","slug"...      GBP
173     {"id":640205335,"name":"Jai'lil Banks","slug":...      USD
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         14   0 Help fund my life long dream of becoming a Bus...
         126   1 I want to get my life back on track and and I ...
         167   134 Imagine if you could physically step into your...
         618   2 Hi! I am currently a Student Teacher in the st...
         1521   0   -
         1705   0 I am try to see the world and take pictures of...
         1917   2 A BBQ in Salford, on 6th May, from 2pm in my b...
         1974   1 I want to have a BBQ at my friends house. He t...
         2120   4 I tried selling my boat after moving, no luck...
         2141   1 The farm house we rent is being sold July 1st,...
         2292   0 they are cars that can fly and are safer that ...
         2396   4 I want to build a new Death Star. Then I can u...
         2533   0 I have never owned a dog before, but I finally...
         2940   14 Be Productive...Keep It Simple! My day t...
         3175   7   Breadboard-compatible Arduino Clone ATMEGA328P
         3415   0 Hand carved keychains with any message you des...
         3548   0 I want a bulldog puppy! \nLook at the puppy, l...
         4299   1 FTS Creations is a business that hand crafts a...
         4364   117 We are creating an Modularized Drone . It will...
         4383   1 The main goal of the project is to reach at le...
         4513   3 An Attempt to Revive and Preserve Persian Noma...
         4790   0 I need money so I can buy Jeremy and take him ...
         4817   0 all i am looking for is a start. the moment to...
         4830   4 Help need to build a council approved enclosur...
         5062   4 Trying to send postcards without appearing to ...
         5555   2   I need a drumset. And some lessons.
         6330   0 I have recently filmed four music videos all o...
         6344   8 A Science Fiction film filled with entertainme...
```

```
6678                  1  Gaby esta estudiando 6 meses en la Universidad...
7027                216  Aesthetic and Ultralight Design | Carbon Nanot...
...                ...                                               ...
204120                0  100+ Apple Watch designs! Fully Customizable;\...
204264                0  Sharing memes with our backers for money to bu...
204408                1              Make learning fun and teaching easy.
204897                0  I want to go into the wilds to find and subseq...
204916                0  I want a Banana pudding milkshake but I can't ...
204940               12  From Bacon to potatoes chips, Enjoy your holid...
205346               73  Any love story will come to an end, but you kn...
205469               98  Wireless open ear sport headphones for safety,...
205753                0  This is my First time making a fursuit and i w...
206308                0  fabrication de rhum arrangé ananas victoria  g...
207449                2  It's my 21st birthday, soo please help me rais...
207482                0  I am a Digital Artist, my specialty is Vintage...
207492               92  Portable eye massager with Graphene Far Infrar...
207512                0  I love gaming and programming. Imagine my dism...
208002                0  Since Christmas of 2010, I've been stuck with ...
208150                0  I'm currently in TN living in an unhealthy env...
208779                1  Overnight instagram celebrity Johnny Gerl one ...
210019                0  Benötigen ein Investment für Marketing - für e...
210069              781  We believe that EVERYONE should benefit from t...
210087                2  High quality, luxury style watches that look A...
210108                3  I need this chicken suit for reasons.\nIf I re...
210783                1  Tales from the Dream Hogs Volume 1 Dreamland h...
210926                1  The real Soldier story behind Captain America...
211186               10  The Automata Master is the first original bran...
211546              591  A customizable smart watch telling time up to ...
211683                2  I am creating a live doorway to knowledge abou...
211770                0        Revitalizing Palo Alto, one house at a time
211786                7    Raptor Watches- Affordable luxury sport watches
211913                0  I am a photographer and fashion stylist based ...
212144                0  So the whole idea is to build a monster machin...

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6344       False  suspended           1481055740        1.000000
6678       False  suspended           1485378599        0.046325
7027       False  suspended           1504728643        1.187462
...          ...        ...                  ...              ...
204120     False  suspended           1431623326        1.487613
204264     False  suspended           1439846757        1.556018
204408     False  suspended           1403554091        1.000000
204897     False  suspended           1441982718        1.000000
204916     False  suspended           1447192635        1.000000
204940     False  suspended           1542229780        0.756855
205346     False  suspended           1558126274        1.000000
205469     False  suspended           1560198870        0.740926
205753     False  suspended           1440684548        0.731917
206308     False  suspended           1452100520        1.096019
207449     False  suspended           1428603041        1.000000
207482     False  suspended           1505759703        1.000000
207492     False  suspended           1546019031        0.127996
207512     False  suspended           1438018072        1.000000
208002     False  suspended           1447192714        1.000000
208150     False  suspended           1407973571        1.000000
208779     False  suspended           1427735990        1.000000
210019     False  suspended           1515526502        1.203022
210069     False  suspended           1429124693        1.000000
210087     False  suspended           1517593543        0.809594
210108     False  suspended           1414173785        0.888454
210783     False  suspended           1527028025        1.000000
210926     False  suspended           1504884430        1.000000
211186     False  suspended           1543335446        0.127895
211546     False  suspended           1492806675        1.000000
211683     False  suspended           1432131260        1.000000
211770     False  suspended           1419956824        1.000000
211786     False  suspended           1551121556        1.000000
211913     False  suspended           1448923872        1.000000
212144     False  suspended           1440017174        1.000000


                                            urls    usd_pledged  \
14      {"web":{"project":"https://www.kickstarter.com...       0.000000
126     {"web":{"project":"https://www.kickstarter.com...       5.000000
167     {"web":{"project":"https://www.kickstarter.com...   54418.000000
618     {"web":{"project":"https://www.kickstarter.com...      42.000000
```

1521	{"web":{"project":"https://www.kickstarter.com...	0.000000
1705	{"web":{"project":"https://www.kickstarter.com...	0.000000
1917	{"web":{"project":"https://www.kickstarter.com...	7.769706
1974	{"web":{"project":"https://www.kickstarter.com...	1.000000
2120	{"web":{"project":"https://www.kickstarter.com...	4.000000
2141	{"web":{"project":"https://www.kickstarter.com...	100.000000
2292	{"web":{"project":"https://www.kickstarter.com...	0.000000
2396	{"web":{"project":"https://www.kickstarter.com...	10.277193
2533	{"web":{"project":"https://www.kickstarter.com...	0.000000
2940	{"web":{"project":"https://www.kickstarter.com...	194.000000
3175	{"web":{"project":"https://www.kickstarter.com...	139.719877
3415	{"web":{"project":"https://www.kickstarter.com...	0.000000
3548	{"web":{"project":"https://www.kickstarter.com...	0.000000
4299	{"web":{"project":"https://www.kickstarter.com...	1.000000
4364	{"web":{"project":"https://www.kickstarter.com...	11122.507134
4383	{"web":{"project":"https://www.kickstarter.com...	11.099284
4513	{"web":{"project":"https://www.kickstarter.com...	13.330609
4790	{"web":{"project":"https://www.kickstarter.com...	0.000000
4817	{"web":{"project":"https://www.kickstarter	0.000000
4830	{"web":{"project":"https://www.kickstarter.com...	79.979821
5062	{"web":{"project":"https://www.kickstarter.com...	29.434512
5555	{"web":{"project":"https://www.kickstarter.com...	6.000000
6330	{"web":{"project":"https://www.kickstarter.com...	0.000000
6344	{"web":{"project":"https://www.kickstarter.com...	5299.000000
6678	{"web":{"project":"https://www.kickstarter.com...	4.632482
7027	{"web":{"project":"https://www.kickstarter.com...	12641.723646
...	...	...
204120	{"web":{"project":"https://www.kickstarter.com...	0.000000
204264	{"web":{"project":"https://www.kickstarter.com...	0.000000
204408	{"web":{"project":"https://www.kickstarter.com...	150.000000
204897	{"web":{"project":"https://www.kickstarter.com...	0.000000
204916	{"web":{"project":"https://www.kickstarter.com...	0.000000
204940	{"web":{"project":"https://www.kickstarter.com...	946.288275
205346	{"web":{"project":"https://www.kickstarter.com...	3916.000000
205469	{"web":{"project":"https://www.kickstarter.com...	5095.564690
205753	{"web":{"project":"https://www.kickstarter.com...	0.000000
206308	{"web":{"project":"https://www.kickstarter.com...	0.000000
207449	{"web":{"project":"https://www.kickstarter.com...	12.000000
207482	{"web":{"project":"https://www.kickstarter.com...	0.000000
207492	{"web":{"project":"https://www.kickstarter.com...	6466.224872
207512	{"web":{"project":"https://www.kickstarter.com...	0.000000
208002	{"web":{"project":"https://www.kickstarter.com...	0.000000
208150	{"web":{"project":"https://www.kickstarter.com...	0.000000
208779	{"web":{"project":"https://www.kickstarter.com...	1.000000
210019	{"web":{"project":"https://www.kickstarter.com...	0.000000
210069	{"web":{"project":"https://www.kickstarter.com...	42063.000000
210087	{"web":{"project":"https://www.kickstarter.com...	86.626559
210108	{"web":{"project":"https://www.kickstarter.com...	27.542066

```
210783  {"web":{"project":"https://www.kickstarter.com...          1.000000
210926  {"web":{"project":"https://www.kickstarter.com...         25.000000
211186  {"web":{"project":"https://www.kickstarter.com...        296.716400
211546  {"web":{"project":"https://www.kickstarter.com...     172920.400000
211683  {"web":{"project":"https://www.kickstarter.com...         11.000000
211770  {"web":{"project":"https://www.kickstarter.com...          0.000000
211786  {"web":{"project":"https://www.kickstarter.com...        585.000000
211913  {"web":{"project":"https://www.kickstarter.com...          0.000000
212144  {"web":{"project":"https://www.kickstarter.com...          0.000000

        usd_type
14      domestic
126     domestic
167     domestic
618     domestic
1521    domestic
1705    domestic
1917    domestic
1974    domestic
2120    domestic
2141    domestic
2292    domestic
2396    domestic
2533    domestic
2940    domestic
3175    domestic
3415    domestic
3548    domestic
4299    domestic
4364    domestic
4383    domestic
4513    domestic
4790    domestic
4817    domestic
4830    domestic
5062    domestic
5555    domestic
6330    domestic
6344    domestic
6678    domestic
7027    domestic
...          ...
204120  domestic
204264  domestic
204408  domestic
204897  domestic
204916  domestic
204940  domestic
```

```
205346  domestic
205469  domestic
205753  domestic
206308  domestic
207449  domestic
207482  domestic
207492  domestic
207512  domestic
208002  domestic
208150  domestic
208779  domestic
210019  domestic
210069  domestic
210087  domestic
210108  domestic
210783  domestic
210926  domestic
211186  domestic
211546  domestic
211683  domestic
211770  domestic
211786  domestic
211913  domestic
212144  domestic

[635 rows x 37 columns]
```

In [39]: # assess urls
         kickstarter['urls'].values

Out[39]: array(['{"web":{"project":"https://www.kickstarter.com/projects/2044486203/citizen-car
                '{"web":{"project":"https://www.kickstarter.com/projects/1498616534/simbin?ref=
                '{"web":{"project":"https://www.kickstarter.com/projects/2019826059/photographi
                ...,
                '{"web":{"project":"https://www.kickstarter.com/projects/546114795/q2q-comics-v
                '{"web":{"project":"https://www.kickstarter.com/projects/2024520986/the-positio
                '{"web":{"project":"https://www.kickstarter.com/projects/61747643/maranatha-sho
                dtype=object)

In [40]: # assess composiition of urls
         kickstarter.iloc[893]['urls']

Out[40]: '{"web":{"project":"https://www.kickstarter.com/projects/871534856/grafik-aircraft-the

In [41]: # assess usd type
         kickstarter.usd_type.value_counts()

Out[41]: domestic   210842
         international   1416
         Name: usd_type, dtype: int64
```

The below Code was used to assess duplicated entries. I found out that most duplicated projects were differing because they were scraped from a different source url. Some urls used the parent category, some used the subcategory of the project. Additionally, I detected duplicate observations due to different values in current currency and therefore differing exchange rates. Fortunately, all relevant columns contain consistent values.

The below is code out-commented, since it requires a lot of resources and may cause a massive slow-down of Jupyter Notebook.

```
In [42]:  # Assess duplicates
          # duplicated_ids = kickstarter_clean[kickstarter_clean.project_id.duplicated()].proje
          # duplicated_projects = kickstarter_clean[kickstarter_clean.project_id.isin(duplicate
          # len(duplicated_projects.current_currency)

          # col_names = ['current_currency', 'fx_rate', 'static_usd_rate', 'converted_pledged_a
          # for i in range(0, len(duplicated_projects), 2):
          #     next_i = i + 1
          #     if not (duplicated_projects.iloc[i]['source_url'] == duplicated_projects.iloc[n
          #         print(f"{i}")
          # #         print(f"state1: {duplicated_projects.iloc[i]['state_changed_at']}")
          # #         print(f"state2: {duplicated_projects.iloc[next_i]['state_changed_at']}")
          # #         print(f"update1: {duplicated_projects.iloc[i]['last_update_at']}")
          # #         print(f"update2: {duplicated_projects.iloc[next_i]['last_update_at']}")
          #         for col in col_names:
          #             if not (duplicated_projects.iloc[i][col] == duplicated_projects.iloc[ne
          #                 print(f"{col}, {duplicated_projects.iloc[i][col]}", "\n", f"{duplic
          #                 print(f"cat1: {duplicated_projects.iloc[i]['category']}")
          #                 print(f"cat2: {duplicated_projects.iloc[next_i]['category']}")
          #                 print(f"sub1: {duplicated_projects.iloc[next_i]['subcategory']}")
          #                 print(f"sub2: {duplicated_projects.iloc[next_i]['subcategory']}")
```

4.2 Data Summary

Above, I inspected each variable and their values. One of the main problems of this data is missing documentation on how the Kickstarter data was scraped or generated. Some column names are not descriptive enough or are ambiguous. I interpreted each value's meaning by carefully comparing the data to project features on Kickstarter.com.

backers_count: Number of people supporting a project by financially pledging (integer).
blurb: A short project summary (string).
category: Contains a string representation of a dictionary containing multiple information about a project category information. Most relevant is the category's "name" and the higher level category "slug", which also represents the rightmost part of the category URI. The slug is composed of a higher level category, followed by a slash, followed by a subcategory. However, some observations lack a subcategory. In this case, slug and name contain the same value.
converted_pledged_amount: Amount of fundraising, which was converted by using *current currency* (see below).
country: Project country (abbr.)
created_at: The date a project was created in Unix epoch time integer.
creator: A string representation of a dictionary describing features of project creator, containing:

- user id, - name: chosen user name, which doesn't follow a specific format. It may be an actual first and last name and/or a username or company name, - slug: creator profile slug, - multiple links to the user's avatars of different sizes, - the link to a user's profile in the form of: https://www.kickstarter.com/profile/ + user_id, - a user's API endpoint (which is not accessible to us), - "is_registered" and "chosen_currency", of which all contain "null" as a value

currency: The currency of a project's funding.

currency_symbol: Currency symbol of the project's initial currency. **currency_trailing_code:** Contains boolean values. It's mostly "True", but "False" in the case of the following currencies: EUR, GBP, JPY and CHF. I was unable to identify its meaning. One assumption is that it is related to trailing zeros that occur during currency conversions. However, I don't see how this value affects our analysis.

current_currency: contains a value out of 5 possible currencies (USD, CAD, AUD, GBP and EUR). Although projects are usually advertised in the country's currency, any other currencies are usually converted to one of the aforementioned currencies, usually USD.

deadline: Project funding deadline as Unix epoch time integer.

disable_communication: Contains a boolean. Likely, its value is False if a creator whether doesn't allow to be contacted. However, I cannot confirm its meaning beyond any doubt. **friends:** Is mainly an empty value, but contains empty square brackets in a few cases.

fx_rate: Stands for foreign exchange rate. It's the exchange rate used to convert the project's currency into the current currency at the time of the data scraping (float).

goal: Funding goal in the project's currency (float).

id: Internal Kickstarter id.

is_backing: It is unclear what this feature refers to. The common characteristics of those projects are that they are live and neither spotlighted, nor staff-picked. However, most values are empty.

is_starrable: The meaning remains unclear to me. It contains boolean values, which are mostly "False".

is_starred: Contains a few Boolean, the rest is nan. Interestingly, is_backing and is starrable contain the same values for each observation. The meaning remains unclear to me.

launched_at: Time project opened for funding as Unix epoch time integer.

location: String representation of a dictionary, containing location information:

- _id:_location id,
- *name:* city name,
- *slug:* location slug,
- *short name:* city + country or US-state
- *displayable name:* city, + country or US-state,
- *localized name*: name of the city - *country*: country name (abbreviated)
- *state*: local state/region,
- *type*: location type - town, city etc.
- *is root*: False, the meaning is unclear,
- *urls*: location specific search urls

name: Project title

permissions: Contains mostly cells, in a few cases there are empty square brackets. Those are only found if there are non-null values in *friends*, *is_backing*,*is starrable*.

photo: JSON string containing urls, linking to project cover photos in multiple sizes: original, ed, med, little, small, thumb and 1024x576, 1536x864.

pledged: Amount pledged in project currency

profile: JSON string containing fundamental project information, which were extracted from the project's homepage header:

- *id* and *project id:* both keys contain the same project id, - *state:* Refers to projects that can be followed, after the funding ended. Values are 'inactive' or 'active',
- *state changed at:* Refers to the last time a profile information changed in Unix epoch time,
- *name:* project title (cf. *name*),
- *blurb:* Short campaign description, it may be different from the initial *blurb* above,
- *background color*, *text color*, *link background color:*, link_text_color: color information as hex code, -_link text: text in a button of a project's homepage,
- *link url*: contains information on style attributes of links
- *image urls*: contains information on image attributes and urls linking to images
    slug: Project URI slug.
source_url: Category URIs.
spotlight: It is true for projects that were promoted by Kickstarter by spotlighting it on the landing page and optionally in Kickstarter's newsletter/social media channels.
staff_pick: It is true for projects which were picked by staff and awarded the 'Projects We Love' badge.
state: Refers to the current status of a project: successful, failed, canceled, live or suspended.
state_changed_at: A Unix epoch time integer referring to when the status of the project has changed last, usually when the campaign ended.
static_usd_rate: Conversion rate from project currency to USD. What exactly this exchange rate stands for and what date it relates to, remains unclear to me.
urls: Json style string, containing: - _project:_Link to project campaign page, which ends with a search query term: '?ref=discovery_category_newest' - *rewards:* Link to project rewards for pledges
    usd pledged: Refers to the total amount pledged in USD, which was converted using the above static USD conversion rate.
usd type: International vs. domestic dollar type. However, since US projects are often considered international dollars, the meaning remains unclear to me.

4.3   Issues Summary

4.3.1   Tidiness Issues

- *category*: Contains multiple variables in the form of a string representation of a dictionary. Category name and category slug should be stored in separate columns.
- *creator*: Contains multiple variables in the form of a string representation of a dictionary. Creator id and creator name should be stored in separate columns.
- *location*: Contains multiple variables in the form of a string representation of a dictionary. City, state, displayable name and location type should be stored in separate columns.
- *photos*: contains multiple variables in the form of a string representation of a dictionary. Image link of size 'ed' should be stored in a separate column.
- *profile*: contains multiple variables in the form of a string representation of a dictionary. "Project id" and "profile change at" should be stored in a separate column.
- *Urls*: contains multiple variables in the form of a string representation of a dictionary. There should be one single URL linking to a project.

- Duplicate projects with different values in some of the columns.
- *Staff pick* and *spotlight* refer to the same concern, namely whether a project was promoted by Kickstarter. Therefore, they should be summarized into one column.

4.3.2 Quality Issues

- Erroneous values in *country*. They should match the value in *location*.

- *created at*, *deadline* , *launched at*, *state changed at* and *last updated at* time format is not human readable.
- Observations don't follow an ordered pattern. A historic order would help improving interpretation.
- Dubious currency conversion: we can't rely on values in *static usd rate* and *fx rate* due to missing documentation and inconsistent values.
- *goal* and *usd pledged* are incomparable due to non-matching currencies and dubious exchange rates.
- Missing description (blurb) in some projects
- Erroneous data types: - *country*, *currency*, *status*, *category* and *subcategory* should be of type category.
- Ambiguous column names: name should refer to a project's title, *pledged* and *goal* should include currency measures.
- Dubious project statuses: The project's status (ID 2191564) is successful, the difference between goal and pledged is negative though. The projects status is failed (IDs: 3434836, 2736214, 445566), in spite of a positive surplus of pledged and goal.
- Irrelevant features

4.4 Cleaning Data

We are now going to prepare our data for analysis. Any corrupt, inaccurate and unnecessary observations are being corrected or removed with the goal to create a master data frame I can use for analysis. I'm going to start by adressing structural issues first.

4.4.1 Tidiness

```
In [43]: # create copy of data frame
         kickstarter_clean = kickstarter.copy()
```

category **contains multiple variables in the form of a string representation of a dictionary. Category name and category slug should be stored in separate columns.**
   Define
   Rename *category* to *inital category*. Convert string into a dictionary using json module. Extract values of the keys 'name' and 'slug' from *initial category* and store each value in a new, separate column. Store name in *subcategory* and slug in *category*. Only keep the parent category from slug, which is the term before the slash character.
   Code

```
In [44]: # Rename category
         kickstarter_clean.rename(index=str, columns={"category": "initial_category"}, inplace=

         # convert string to dictionary
         categories = [json.loads(kickstarter_clean.iloc[int(i)]['initial_category']) for i in

         # extract slug and name
```

```
kickstarter_clean['subcategory'] = [category['name'] for category in categories]
kickstarter_clean['category'] = [category['slug'] for category in categories]

# extract parent category from slug
kickstarter_clean['category'] = kickstarter_clean['category'].str.extract(r'(?P<catego

# capitalize category
kickstarter_clean['category'] = kickstarter_clean['category'].str.title()
```

Test

```
In [45]: # category was renamed to initital category
         if 'initial_category' in kickstarter_clean.columns:
             print("Initial category found.")
         else:
             print("Initial category NOT found.")

Initial category found.
```

```
In [46]: # now we should have two additional columns: category and subcategory
         kickstarter_clean[['subcategory', 'category']].sample(10)
```

```
Out[46]:            subcategory       category
         95665         Wearables     Technology
         63334               Art            Art
         36372      Illustration            Art
         137029         Webseries   Film & Video
         210632           Painting           Art
         14671               Web     Journalism
         111915         Software     Technology
         376           Documentary   Film & Video
         177446    Narrative Film   Film & Video
         21286             Video     Journalism
```

```
In [47]: # all categories and subcategories are capitalized and were correctly extracted
         kickstarter_clean.category.value_counts()
```

```
Out[47]: Film & Video    27981
         Music           27654
         Technology      21398
         Art             20981
         Publishing      20595
         Food            16573
         Games           14119
         Fashion         12350
         Design           9002
         Comics           8916
         Photography      8277
```

```
            Crafts           7388
            Theater          7117
            Journalism       5925
            Dance            4102
            Name: category, dtype: int64
```

In [48]: kickstarter_clean.subcategory.value_counts()

```
Out[48]: Web                  4627
         Product Design       4387
         Tabletop Games       4066
         Accessories          3633
         Comic Books          3479
         Comedy               3195
         Illustration         3042
         Graphic Novels       2998
         Children's Books     2980
         Apparel              2936
         Gadgets              2936
         Documentary          2907
         Photobooks           2845
         Drinks               2841
         Shorts               2821
         Restaurants          2733
         Fiction              2721
         Video Games          2716
         Nonfiction           2714
         Country & Folk       2700
         Art Books            2649
         Playing Cards        2645
         Hardware             2643
         Apps                 2638
         Drama                2617
         Rock                 2592
         Indie Rock           2585
         Mixed Media          2544
         Pop                  2525
         Classical Music      2522
                              ...
         Couture               338
         Knitting              333
         Fabrication Tools     328
         Puzzles               324
         Photo                 316
         Publishing            311
         Makerspaces           295
         Film & Video          264
         Video Art             262
```

```
Romance                 249
Design                  245
Workshops               244
Crochet                 237
Bacon                   231
Pottery                 223
Fashion                 200
Glass                   199
Latin                   192
Translations            190
Pet Fashion             179
Embroidery              171
Typography              147
Weaving                 143
Literary Spaces         141
Residencies             140
Quilts                  109
Games                    92
Letterpress              68
Chiptune                 46
Taxidermy                18
Name: subcategory, Length: 159, dtype: int64
```

creator **contains multiple variables in the form of a string representation of a dictionary. Creator id and creator name should be stored in separate columns.**

Define

Some creator entries are not recognized as valid json, so we cannot use the json module to convert the string into a dictionary. For example, some creators use nicknames in quotation marks (e.g. "name":"Kat"NomadiKat" Vallera"). Instead, manually extract id and name using regular expressions. Than, remove remaining keys and quotation marks and convert *creator id* into integers. Finally, store the new values in two new columns: *creator id* and *creator name*.

Code

```python
In [49]:  # extract creator id and creator name from json object
          kickstarter_clean['creator_id'] = kickstarter_clean['creator'].str.extract(r'(?P<crea
          kickstarter_clean['creator_name'] = kickstarter_clean['creator'].replace(",","\,")
          kickstarter_clean['creator_name'] = kickstarter_clean['creator_name'].str.extract(r'(

          # remove keys and uneccessary double quotes and convert to appropriate data format
          kickstarter_clean['creator_id'] = [int(creator[5:]) for creator in kickstarter_clean[
          kickstarter_clean['creator_name'] = [str(name)[8:-3] for name in kickstarter_clean['cr

          # slice off string starting from 'slug' or 'is_registered'
          def cut_ending(name):
              i = name.find("slug")
              if i != -1: return name[:i-3]
              i = name.find("is_registered")
```

```
            if i != -1: return name[:i-3]
            return name

    kickstarter_clean['creator_name'] = kickstarter_clean['creator_name'].apply(cut_ending
```

Test

```
In [50]:  # We have two new columns.
          kickstarter_clean[['creator_id', 'creator_name']].sample(20)
```

```
Out[50]:          creator_id              creator_name
          102791    558226010            Ty DeBellotte
          92595     358625990          William Quigley
          104483   1708415095             Gareth Price
          48321     939969452        Jeroen van der Pol
          121954    661334869               Yatta Golf
          199447    535732307               Paul Taylor
          45064     650035249                     Remo
          193569    707440663    The Nightwood Society
          154944   2017027030                     BSKi
          22104    1940176907           Daniel Gohstand
          42978    1257783555             Macy Stevens
          50464     707305561            Jennifer Ilse
          187013    692137480           Chris Clemmons
          8642      198384763                Mondragón
          209361   1603066771              Misael Soto
          52604    1044608562          Leonardo Puentes
          126217    243226919               chris leech
          66376     323665577        Liz & Russ Babcock
          124864    325168833             Randy Robert
          49321      64404943        Sebastian Reynolds
```

```
In [51]:  #  creator_id is integer
          kickstarter_clean.creator_id.sample(3)
```

```
Out[51]:  86716       667065938
          122391     1516866189
          109969     1502070645
          Name: creator_id, dtype: int64
```

```
In [52]:  # test if any empty creator names
          kickstarter_clean[kickstarter_clean.creator_name == ''] ['creator_name'].any()
```

```
Out[52]:  False
```

location contains multiple variables in the form of a string representation of a dictionary.
City, state, displayable name and location type should be stored in separate columns.
Erroneous values in country. They should match the value in location.
Define
Start by removing unwanted nan values from the location data. It simplifies the conversion of

our json string into a dictionary when using the json module. Rename the column referring to the project's *state* in *status* to avoid mixing it up with a location's *state*. Then, extract the values of *name, state, displayable name, type, country* and store them in separate new columns *city, state, displ loc, loc type* and *country*.

Code

```
In [53]: # drop observations without location
         kickstarter_clean.dropna(subset=['location'], inplace=True)
         kickstarter_clean.reset_index(drop=True, inplace=True)

         # convert string to dictionary
         locations = [json.loads(kickstarter_clean.iloc[int(i)]['location']) for i in kickstart

         # rename state into status
         kickstarter_clean.rename(index = str, columns={"state": "status"},  inplace = True)

         # extract city name, state, displayable location and type
         kickstarter_clean['city'] = [location['name'] for location in locations]
         kickstarter_clean['state'] = [location['state'] for location in locations]
         kickstarter_clean['displ_loc'] = [location['displayable_name'] for location in locatio
         kickstarter_clean['loc_type'] = [location['type'] for location in locations]
         kickstarter_clean['country'] = [location['country'] for location in locations]
```

Test

```
In [54]: # renaming successful
         kickstarter_clean.status.value_counts()

Out[54]: successful    120790
         failed         75493
         canceled        8645
         live            6596
         suspended        635
         Name: status, dtype: int64
```

```
In [55]: # there shouldn't be any null values left
         kickstarter_clean.location.isna().any()

Out[55]: False
```

```
In [56]: # new columns: 'city', 'state', 'displ_location', 'loc_type'
         kickstarter_clean[['city', 'state', 'displ_loc', 'loc_type', 'country', 'location']].s

Out[56]:                 city    state       displ_loc loc_type country  \
         78483          23705       VA   Portsmouth, VA      Zip      US
         110805   Los Angeles       CA   Los Angeles, CA     Town     US
         71149       Nashville       TN   Nashville, TN       Town     US
         211427       Burleson       TX   Burleson, TX        Town     US
         156624       San Jose       CA   San Jose, CA        Town     US
```

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```
205146      Portland       OR       Portland, OR     Town      US
164012      Raleigh        NC       Raleigh, NC      Town      US
23925       Frederick      MD       Frederick, MD    Town      US
95929       Queens         NY       Queens, NY       County    US
85320       Tucson         AZ       Tucson, AZ       Town      US
2895        New London     CT       New London, CT   Town      US
149157      Keansburg      NJ       Keansburg, NJ    Town      US
7375        Los Angeles    CA       Los Angeles, CA  Town      US
23815       New York       NY       New York, NY     Town      US
101349      Los Angeles    CA       Los Angeles, CA  Town      US
122317      Long Island    NY       Long Island, NY  Island    US
98797       New York       NY       New York, NY     Town      US
59828       Houston        TX       Houston, TX      Town      US
89109       San Jose       CA       San Jose, CA     Town      US
1516        London     England      London, UK       Town      GB


                                              location
78483    {"id":12767474,"name":"23705","slug":null,"sho...
110805   {"id":2442047,"name":"Los Angeles","slug":"los...
71149    {"id":2457170,"name":"Nashville","slug":"nashv...
211427   {"id":2372036,"name":"Burleson","slug":"burles...
156624   {"id":2488042,"name":"San Jose","slug":"san-jo...
205146   {"id":2475687,"name":"Portland","slug":"portla...
164012   {"id":2478307,"name":"Raleigh","slug":"raleigh...
23925    {"id":2372860,"name":"Frederick","slug":"frede...
95929    {"id":12589352,"name":"Queens","slug":"queens-...
85320    {"id":2508428,"name":"Tucson","slug":"tucson-a...
2895     {"id":2458689,"name":"New London","slug":"new-...
149157   {"id":2430925,"name":"Keansburg","slug":"keans...
7375     {"id":2442047,"name":"Los Angeles","slug":"los...
23815    {"id":2459115,"name":"New York","slug":"new-yo...
101349   {"id":2442047,"name":"Los Angeles","slug":"los...
122317   {"id":12485627,"name":"Long Island","slug":"lo...
98797    {"id":2459115,"name":"New York","slug":"new-yo...
59828    {"id":2424766,"name":"Houston","slug":"houston...
89109    {"id":2488042,"name":"San Jose","slug":"san-jo...
1516     {"id":44418,"name":"London","slug":"london-gb"...
```

photos **contains multiple variables in the form of a string representation of a dictionary. Image link of size 'ed' should be stored in a separate column.**
   Define
Convert *photo* into a dictionary using the json module. Extract the image link to be found within the key 'ed' and store the values in a separate column with the name *image*.
   Code

```
In [57]:  # convert string to dictionary
          photos = [json.loads(kickstarter_clean.iloc[int(i)]['photo']) for i in kickstarter_cle
```

```
In [58]: # extract image of size 'ed' and store in new column 'image'
         kickstarter_clean['image'] = [photo['ed'] for photo in photos]
```

Test

```
In [59]: # show examples how image url was extracted
         kickstarter_clean.image.sample(20)

Out[59]: 59225     https://ksr-ugc.imgix.net/assets/016/643/903/5...
         47516     https://ksr-ugc.imgix.net/assets/022/587/100/6...
         82953     https://ksr-ugc.imgix.net/assets/023/988/861/7...
         82786     https://ksr-ugc.imgix.net/assets/012/036/640/c...
         118023    https://ksr-ugc.imgix.net/assets/019/725/039/c...
         191203    https://ksr-ugc.imgix.net/assets/022/884/647/a...
         39479     https://ksr-ugc.imgix.net/assets/024/018/278/c...
         26334     https://ksr-ugc.imgix.net/assets/017/199/341/1...
         174766    https://ksr-ugc.imgix.net/assets/016/624/529/3...
         59803     https://ksr-ugc.imgix.net/assets/024/126/619/f...
         32200     https://ksr-ugc.imgix.net/assets/025/296/376/0...
         143416    https://ksr-ugc.imgix.net/assets/012/169/686/e...
         164491    https://ksr-ugc.imgix.net/assets/012/050/245/9...
         168476    https://ksr-ugc.imgix.net/assets/013/650/146/a...
         191104    https://ksr-ugc.imgix.net/assets/011/993/010/2...
         139905    https://ksr-ugc.imgix.net/assets/012/007/951/b...
         101586    https://ksr-ugc.imgix.net/assets/011/726/570/a...
         1337      https://ksr-ugc.imgix.net/assets/020/085/733/4...
         189612    https://ksr-ugc.imgix.net/assets/012/033/844/1...
         6314      https://ksr-ugc.imgix.net/assets/012/068/220/0...
         Name: image, dtype: object
```

```
In [60]: # example value
         kickstarter_clean.iloc[8354]['image']

Out[60]: 'https://ksr-ugc.imgix.net/assets/011/322/046/eb9b895fee765ffaa4dfa45be1a02e21_origina
```

profile **contains multiple variables in the form of a string representation of a dictionary. "Project id" and "profile change at" should be stored in a separate column.**

Define

Due to unescaped quotation marks within values, the string is invalid JSON. Therefore, extract the id from *product id* and the values of state changed using regular expressions. Then, remove remaining keys and quotation marks and convert creator id into an integer. Store the extracted values in new columns: *project id* and *last update at*.

Code

```
In [61]: # extract creator id and creator name from json object
         kickstarter_clean['project_id'] = kickstarter_clean['profile'].str.extract(r'(?P<proje

         # remove keys and uneccessary quotes and convert to integer
         kickstarter_clean['project_id'] = [int(project_id[13:]) for project_id in kickstarter_
```

```
In [62]: # extract profile_changed_at
         kickstarter_clean['last_update_at'] = kickstarter_clean['profile'].str.extract(r'(?P<p

         # remove keys and uneccessary double quotes and convert to int
         kickstarter_clean['last_update_at'] = [int(time[19:]) for time in kickstarter_clean['
```

Test

```
In [63]: #  show new project_id and last update at columns and compare values to previous colu
         kickstarter_clean[['project_id', 'profile', 'id', 'creator_id', 'location', 'last_upda

Out[63]:         project_id                                              profile  \
         60899      3440211   {"id":3440211,"project_id":3440211,"state":"ac...

                       id  creator_id  \
         60899  957907239   928963061

                                                  location  last_update_at
         60899  {"id":733075,"name":"Rotterdam","slug":"rotter...      1538478462
```

```
In [64]: # last update should be of type integer for now
         kickstarter_clean['last_update_at'].sample()

Out[64]: 185320     1425915837
         Name: last_update_at, dtype: int64
```

Urls **contains multiple variables in the form of a string representation of a dictionary. There should be one single URL linking to a project.**
   Define
Convert *urls* into dictionaries using the json module and extract the value of key 'project'. Remove the query string from the end of the URI.
   Code

```
In [65]: # convert string to dictionary
         urls = [json.loads(kickstarter_clean.iloc[int(i)]['urls']) for i in kickstarter_clean

         # remove query string
         kickstarter_clean['url'] = [url['web']['project'].replace("?ref=discovery_category_ne
```

Test

```
In [66]: # show examples of our newly cretaed url feature
         kickstarter_clean.url.sample(10)

Out[66]: 176469     https://www.kickstarter.com/projects/120749198...
         152539     https://www.kickstarter.com/projects/105641330...
         88704      https://www.kickstarter.com/projects/unicornpa...
         87013      https://www.kickstarter.com/projects/168124492...
         170156     https://www.kickstarter.com/projects/200759112...
```

```
52282      https://www.kickstarter.com/projects/103250360...
192837     https://www.kickstarter.com/projects/174645931...
209494     https://www.kickstarter.com/projects/152909942...
55341      https://www.kickstarter.com/projects/elizka-br...
13429      https://www.kickstarter.com/projects/56814098/...
Name: url, dtype: object
```

Duplicate projects with different values in some of the columns.
Define

The assessment revealed that duplicate entries resulted from inconsistent values in features that are irrelevant for our research. Consequently, it is sufficient to remove duplicated observations by referring to projects with the same project_id. Keep the first observation in each case.

Code

```
In [67]: kickstarter_clean.drop_duplicates(subset=['project_id'], keep='first', inplace=True)
         kickstarter_clean.reset_index(drop=True, inplace=True)
```

Test

```
In [68]: # There shouldn't be any duplcated project ids left.
         len(kickstarter_clean[kickstarter_clean.project_id.duplicated()])
```

```
Out[68]: 0
```

Staff pick **and** *spotlight* **refer to the same concern, namely whether a project was promoted by Kickstarter. Therefore, they should be summarized into one column.**
Define:

Create two additional columns for projects that were a) not supported and 2) fully supported. Fully supported projects shall refer to project that were both, spotlighted on the landing page and were awarded a "Projects We Love" badge. Fill both columns by default with False. Then compare staff pick and spotlight. If both values are True for one observation, change the value in *full support* to True. If both values are False, change the value in *no support* to True.

Subsequently, replace all True values in *staff pick* into "Projects We Love" and all True values in *spotlight* by "spotlight"
In *staff pick* replace all True values by "Projects We Love" and in *spotlight* replace all True values by "spotlight". Melt all values into one column and call it *featured*. Remove all rows containing "False" in *featured* and the placeholder column, that was generated in the melt process. Finally, reset index.

Code:

```
In [69]: len(kickstarter_clean)
```

```
Out[69]: 184921
```

```
In [70]: # add additional columns with placeholder values
         kickstarter_clean['no support'] = False
         kickstarter_clean['full support'] = False

         # assign "no support" to all observation without any support,
```

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```python
            # meaning the values are  False in both, staff_pick and spotlight
            kickstarter_clean.loc[(kickstarter_clean['spotlight'] == False) & (kickstarter_clean[
                               'no support'] = "no support"

            # assign "full support" to all observation with full support,
            # meaning the values are True in staff_pick and spolight
            kickstarter_clean.loc[(kickstarter_clean['spotlight'] == True) & (kickstarter_clean['s
                               'full support'] = "full support"
            # replace True values of fully supported projects to False in spotlight and staff pic
            kickstarter_clean.loc[(kickstarter_clean['spotlight'] == True) & (kickstarter_clean['s
                               ['spotlight', 'staff_pick']] = False

            # In staff pick, replace all remaining True values by "Projects We Love"
            kickstarter_clean.loc[(kickstarter_clean['staff_pick'] == True), 'staff_pick'] = "Proj

            # In spotlight, replace all remaining True values by "spotlight"
            kickstarter_clean.loc[(kickstarter_clean['spotlight'] == True), 'spotlight'] = "spotli

            # get column names and remove the 4 support related columns
            column_names = kickstarter_clean.columns
            column_names = column_names.drop(['no support', 'full support', 'staff_pick', 'spotlig

            # melt columns into one column "featured"
            kickstarter_clean = pd.melt(kickstarter_clean, id_vars=column_names, var_name='placeho

            # Remove all observation containing False
            kickstarter_clean = kickstarter_clean[kickstarter_clean['featured'] != False]

            # remove placeholder and reset index
            kickstarter_clean.drop(['placeholder'], axis=1, inplace=True)
            kickstarter_clean.reset_index(drop=True, inplace=True)
```

Test:

```
In [71]: # we shouldn't have lost any observations
         kickstarter_clean.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 184921 entries, 0 to 184920
Data columns (total 48 columns):
backers_count            184921 non-null int64
blurb                    184913 non-null object
initial_category         184921 non-null object
converted_pledged_amount 184921 non-null int64
country                  184921 non-null object
created_at               184921 non-null int64
creator                  184921 non-null object
currency                 184921 non-null object
```

```
currency_symbol            184921 non-null object
currency_trailing_code     184921 non-null bool
current_currency           184921 non-null object
deadline                   184921 non-null int64
disable_communication      184921 non-null bool
friends                    102 non-null object
fx_rate                    184921 non-null float64
goal                       184921 non-null float64
id                         184921 non-null int64
is_backing                 102 non-null object
is_starrable               184921 non-null bool
is_starred                 102 non-null object
launched_at                184921 non-null int64
location                   184921 non-null object
name                       184921 non-null object
permissions                102 non-null object
photo                      184921 non-null object
pledged                    184921 non-null float64
profile                    184921 non-null object
slug                       184921 non-null object
source_url                 184921 non-null object
status                     184921 non-null object
state_changed_at           184921 non-null int64
static_usd_rate            184921 non-null float64
urls                       184921 non-null object
usd_pledged                184921 non-null float64
usd_type                   184860 non-null object
subcategory                184921 non-null object
category                   184921 non-null object
creator_id                 184921 non-null int64
creator_name               184921 non-null object
city                       184921 non-null object
state                      184868 non-null object
displ_loc                  184921 non-null object
loc_type                   184921 non-null object
image                      184921 non-null object
project_id                 184921 non-null int64
last_update_at             184921 non-null int64
url                        184921 non-null object
featured                   184921 non-null object
dtypes: bool(3), float64(5), int64(10), object(30)
memory usage: 64.0+ MB
```

```
In [72]: # show example values of our new column
         kickstarter_clean[['featured']].sample(10)

Out[72]:          featured
         4305     spotlight
```

```
155066     no support
28055       spotlight
70232       spotlight
140870    no support
144328    no support
152932    no support
173463   full support
52391       spotlight
123207    no support
```

In [73]: *# show distribution of support*
         kickstarter_clean['featured'].value_counts()

Out[73]: no support   84621
         spotlight   77741
         full support   19747
         Projects We Love   2812
         Name: featured, dtype: int64

In [74]: *# the index was reset*
         kickstarter_clean.tail()

Out[74]:   backers_count   blurb \
         184916   96 A visual essay exploring humanity's relationsh...
         184917   79 The untold story of an inland sea, a small tow...
         184918   60 Thomas est un mari et un père irréprochable. M...
         184919   215 Spoiled Milk is a USC Graduate thesis film abo...
         184920   143   big trees broken hearts beautiful images

                                             initial_category \
         184916 {"id":294,"name":"Experimental","slug":"film &...
         184917 {"id":30,"name":"Documentary","slug":"film & v...
         184918 {"id":32,"name":"Shorts","slug":"film & video/...
         184919 {"id":32,"name":"Shorts","slug":"film & video/...
         184920 {"id":31,"name":"Narrative Film","slug":"film ...

                 converted_pledged_amount country   created_at \
         184916   10834   GB   1404650625
         184917   5109   US   1422379803
         184918   8389   FR   1436436273
         184919   18291   US   1516668607
         184920   10626   US   1324229394

                                             creator currency \
         184916 {"id":71118245,"name":"Louis-Jack Horton-Steph...   GBP
         184917 {"id":1224433372,"name":"Aaron Peterson // Cle...   USD
         184918 {"id":2030287359,"name":"David GUIRAUD","slug"...   EUR
         184919 {"id":1960005274,"name":"Florence Heller","is_...   USD
         184920 {"id":1756210031,"name":"Adele Romanski","is_r...   USD
```

```
        currency_symbol  currency_trailing_code  ...  \
184916                č                   False  ...
184917                $                    True  ...
184918                                    False  ...
184919                $                    True  ...
184920                $                    True  ...


                         creator_name          city  \
184916        Louis-Jack Horton-Stephens        London
184917  Aaron Peterson // Clear & Cold Cinema    Munising
184918                      David GUIRAUD       Valbonne
184919                    Florence Heller  Los Angeles
184920                    Adele Romanski  Los Angeles


                          state          displ_loc     loc_type  \
184916                    England        London, UK        Town
184917                         MI      Munising, MI        Town
184918  Provence-Alpes-Cote d'Azur  Valbonne, France  LocalAdmin
184919                         CA   Los Angeles, CA        Town
184920                         CA   Los Angeles, CA        Town


                                               image  project_id  \
184916  https://ksr-ugc.imgix.net/assets/011/740/553/7...    1100765
184917  https://ksr-ugc.imgix.net/assets/012/015/917/4...    1662891
184918  https://ksr-ugc.imgix.net/assets/012/192/019/6...    2005448
184919  https://ksr-ugc.imgix.net/assets/020/006/374/4...    3285357
184920  https://ksr-ugc.imgix.net/assets/011/308/760/9...      65220


        last_update_at                                          url  \
184916      1433352322  https://www.kickstarter.com/projects/louis-jac...
184917      1425915891  https://www.kickstarter.com/projects/122443337...
184918      1436436273  https://www.kickstarter.com/projects/enproiefi...
184919      1516668607  https://www.kickstarter.com/projects/196000527...
184920      1425915804  https://www.kickstarter.com/projects/175621003...


            featured
184916  full support
184917  full support
184918  full support
184919  full support
184920  full support


[5 rows x 48 columns]
```

4.5 Quality issues

created at, deadline , launched at, state changed at and *last updated at* **time format is not human readable.**
   Define
Convert created at, deadline, launched at, state changed at and last updated at into datetime format.
   Code

```
In [75]: # to dateime
         kickstarter_clean[['created_at', 'launched_at', 'state_changed_at', 'deadline', 'last_
```

   Test

```
In [76]: kickstarter_clean[['created_at', 'launched_at', 'state_changed_at', 'deadline', 'last_

Out[76]:                 created_at         launched_at      state_changed_at  \
         145218 2016-01-22 12:59:48 2016-03-09 08:51:59 2016-04-08 07:51:59
         85785   2018-05-14 18:11:17 2018-05-22 22:30:28 2018-06-21 22:30:29
         111907 2015-03-31 18:09:52 2015-04-16 17:22:47 2015-06-15 17:22:50
         12673   2015-07-22 14:10:55 2015-08-07 08:38:02 2015-09-06 08:38:04
         53810   2014-10-08 22:39:42 2014-11-02 22:27:04 2014-12-02 22:27:04


                           deadline       last_update_at
         145218 2016-04-08 07:51:59 2016-01-22 12:59:48
         85785   2018-06-21 22:30:28 2018-05-14 18:11:17
         111907 2015-06-15 17:22:47 2015-03-31 18:09:52
         12673   2015-09-06 08:38:02 2015-07-22 14:10:55
         53810   2014-12-02 22:27:04 2015-03-09 15:44:38
```

   Observations don't follow an ordered pattern. A historic order would help improving interpretation.
   Define
Sort observations in descending order based on the date a project was *launched at*.
   Code

```
In [77]: # sort values and reset index
         kickstarter_clean.sort_values(by='launched_at', ascending=False, inplace=True)
         kickstarter_clean.reset_index(drop=True, inplace=True)
```

   Test

```
In [78]: kickstarter_clean.launched_at.head(10)

Out[78]: 0    2019-07-18 05:04:48
         1    2019-07-18 03:50:07
         2    2019-07-18 03:23:01
         3    2019-07-18 03:20:47
         4    2019-07-18 02:55:13
         5    2019-07-18 02:55:09
```

```
        6    2019-07-18 02:24:42
        7    2019-07-18 01:43:29
        8    2019-07-18 01:33:07
        9    2019-07-18 00:57:35
        Name: launched_at, dtype: datetime64[ns]

In [79]: kickstarter_clean.launched_at.tail()

Out[79]: 184916    2009-05-01 15:44:25
         184917    2009-05-01 12:22:21
         184918    2009-04-29 21:11:15
         184919    2009-04-29 20:08:13
         184920    2009-04-28 11:55:41
         Name: launched_at, dtype: datetime64[ns]
```

Dubious currency conversion: we can't rely on values in *static usd rate* and *fx rate* due to missing documentation and inconsistent values.
Define
As we found inconsistencies in exchange rates, gather the exchange rates from the API of European Central Bank: https://exchangeratesapi.io/ .

First request the current exchange rate as of today using USD as the currency base. Generate a new column and match the current exchange rate to the project's currency: USD, GBP, EUR, CAD, AUD, MXN, SEK, NZD, DKK, HKD, CHF,SGD, NOK and JPY.

Generate a second column of historic exchange rates based on the dates of the fundraising. By using the historic exchange rates, we'll gain a more realistic impression of the value of a campaign. Use a project's deadline as the date of the exchange rate. Write a function to request the historic exchange rate, based on a project's currency and deadline. The initial request may take multiple hours. So, cache the historic exchange rates into a csv file, to avoid running the request multiple times. Finally, merge the historic exchange rates into the clean data frame.
Code

```
In [80]: # request current exchange rates based on USD
         url = 'https://api.exchangeratesapi.io/latest?base=USD'
         response = requests.get(url)

         current_fx_rates = json.loads(response.content)
         print(f"Current exchange rates base USD, date: {current_fx_rates['date']}.\n")
         print(current_fx_rates)

Current exchange rates base USD, date: 2019-08-06.


{'rates': {'CAD': 1.3216233128, 'HKD': 7.8367748279, 'ISK': 122.0166264414, 'PHP': 52.0863502

In [81]: # create new column for current exchange rates
         currencies = kickstarter_clean['currency'].values
         kickstarter_clean['current_fx_rate(usd)'] = [float(current_fx_rates['rates'][currency]
```

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```python
In [82]: # utility to request exchange rate from API
         def get_fx_rate(i):
             rate = 1.0
             # request only if not USD
             if new_projects.iloc[i]['currency'] != 'USD':
                 fx_url = url.format(deadlines[i])
                 response = requests.get(fx_url)
                 response = json.loads(response.content)
                 currency = new_projects.iloc[i]['currency']
                 rate =  float(response['rates'][currency])
             return rate
```

```python
In [83]: start = time.time()
         # load existing exchange rates file or create a new empty data frame
         try:
             df_hist_rates = pd.read_csv('./data/exchange_rates.csv')
         except:
             df_hist_rates = pd.DataFrame(columns=['project_id', 'hist_exchange_rate(usd)'])

         # identify projects without historic exchange rates
         # all project that had their exchange rate requested already
         old_projects = df_hist_rates['project_id'].values
         # new projects with missing exchange rates
         new_projects = kickstarter_clean[~kickstarter_clean['project_id'].isin(old_projects)]
         print(len(new_projects), "projects require request of historic exchange rate.")

         # variables needed to request exchange rate from url
         url = 'https://api.exchangeratesapi.io/{}?base=USD'
         deadlines = [str(deadline)[:10] for deadline in new_projects['deadline'].values]

         # request exchange rate for every new project
         if len(new_projects) != 0:
             new_rates = []
             print("Start request of historic exchange rates.")
             for i in range(len(new_projects)):
                 try:
                     rate = get_fx_rate(i)
                     new_rates.append({'project_id' : new_projects.iloc[i]['project_id'],
                                 'hist_exchange_rate(usd)': rate})
                     print(new_projects.iloc[i]['currency'], ' - ', rate)
                 except:
                     print("Unexpected error:", sys.exc_info()[0])

             # add new rates to data frame
             df_new_rates = pd.DataFrame(new_rates, columns=df_hist_rates.columns)
             df_hist_rates = df_hist_rates.append(df_new_rates, ignore_index=True)
             df_hist_rates.reset_index(drop=True, inplace=True)
             # write new dataframe to file
```

```python
        df_hist_rates.to_csv('./data/exchange_rates.csv', index=False, encoding='utf-8')

    end = time.time()
    print("Process finished. Time elapsed: ", round((end-start) / 60, 2), "min." )
```

```
8666 projects require request of historic exchange rate.
Start request of historic exchange rates.
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
HKD  -  7.8367748279
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4719764012
EUR  -  0.8938946992
USD  -  1.0
NZD  -  1.52614642
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
NZD  -  1.52614642
USD  -  1.0
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USD  -  1.0
```

```
EUR  -  0.8938946992
USD  -  1.0
DKK  -  6.6723875927
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
CAD  -  1.3148596538
USD  -  1.0
SEK  -  9.58854027
USD  -  1.0
CAD  -  1.3216233128
EUR  -  0.8938946992
USD  -  1.0
CHF  -  0.9760436221
CAD  -  1.3216233128
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8208635023
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
CAD  -  1.3216233128
USD  -  1.0
CAD  -  1.3216233128
EUR  -  0.8938946992
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
MXN  -  19.5496558505
USD  -  1.0
USD  -  1.0
SGD  -  1.380262805
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
CAD  -  1.3216233128
```

```
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8938946992
EUR  -  0.8938946992
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.8938946992
MXN  -  19.5496558505
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
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USD  -  1.0
USD  -  1.0
SGD  -  1.380262805
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8216572505
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
CAD  -  1.3216233128
```

```
USD  -  1.0
USD  -  1.0
MXN  -  19.5496558505
EUR  -  0.8938946992
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
GBP  -  0.8216572505
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8208635023
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
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GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
MXN  -  19.5496558505
EUR  -  0.8938946992
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
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USD  -  1.0
EUR  -  0.8938946992
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
GBP  -  0.8208635023
USD  -  1.0
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GBP  -  0.8208635023
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HKD  -  7.8231127847
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
MXN  -  19.5496558505
USD  -  1.0
USD  -  1.0
CHF  -  0.9760436221
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.5496558505
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
HKD  -  7.8367748279
USD  -  1.0
SEK  -  9.58854027
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
HKD  -  7.8367748279
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8367748279
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
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EUR  -  0.8938946992
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USD  -  1.0
GBP  -  0.8208635023
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USD  -  1.0
EUR  -  0.8938946992
GBP  -  0.8208635023
EUR  -  0.8938946992
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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NZD  -  1.52614642
USD  -  1.0
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GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
```

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AUD  -   1.4719764012
GBP  -   0.8208635023
USD  -   1.0
GBP  -   0.8208635023
USD  -   1.0
EUR  -   0.8938946992
SEK  -   9.58854027
GBP  -   0.8208635023
EUR  -   0.8938946992
EUR  -   0.8938946992
AUD  -   1.4719764012
GBP  -   0.8208635023
EUR  -   0.8938946992
USD  -   1.0
CAD  -   1.3216233128
USD  -   1.0
AUD  -   1.4719764012
USD  -   1.0
USD  -   1.0
USD  -   1.0
CAD  -   1.3216233128
CAD  -   1.3216233128
USD  -   1.0
USD  -   1.0
USD  -   1.0
AUD  -   1.4719764012
CAD  -   1.3216233128
USD  -   1.0
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USD  -   1.0
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USD  -   1.0
USD  -   1.0
USD  -   1.0
SEK  -   9.58854027
USD  -   1.0
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USD  -   1.0
DKK  -   6.6723875927
USD  -   1.0
USD  -   1.0
USD  -   1.0
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USD  -   1.0
USD  -   1.0
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USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
EUR  -  0.8938946992
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
HKD  -  7.8367748279
GBP  -  0.8208635023
AUD  -  1.4719764012
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
GBP  -  0.8208635023
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USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.8938946992
AUD  -  1.4719764012
```

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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.5496558505
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
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GBP  -  0.8208635023
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GBP  -  0.8208635023
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NOK  -  8.8982747832
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
EUR  -  0.8938946992
SGD  -  1.380262805
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
```

```
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AUD  -  1.4773743516
USD  -  1.0
GBP  -  0.8208635023
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USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8938946992
NOK  -  8.8982747832
USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.897827258
DKK  -  6.6723875927
USD  -  1.0
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USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8938946992
SGD  -  1.380262805
GBP  -  0.8208635023
SGD  -  1.370181101
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GBP  -  0.8208635023
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8367748279
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
CAD  -  1.3180104148
```

```
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USD  -  1.0
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
GBP  -  0.8208635023
SEK  -  9.58854027
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
HKD  -  7.8367748279
CAD  -  1.3216233128
EUR  -  0.8938946992
CHF  -  0.9760436221
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8942944017
GBP  -  0.8208635023
USD  -  1.0
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EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.823924005
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8047495062
USD  -  1.0
USD  -  1.0
CHF  -  0.9760436221
USD  -  1.0
CAD  -  1.3234287772
GBP  -  0.8208635023
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
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EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
GBP  -  0.8208635023
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8367748279
EUR  -  0.8938946992
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USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8208635023
GBP  -  0.8208635023
DKK  -  6.6723875927
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4719764012
HKD  -  7.8367748279
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
SGD  -  1.380262805
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
EUR  -  0.8938946992
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
JPY  -  106.4628586752
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.897827258
USD  -  1.0
MXN  -  19.5496558505
```

```
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.8208635023
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3216233128
USD   -   1.0
GBP   -   0.823924005
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.9060433089
USD   -   1.0
SGD   -   1.3715262164
GBP   -   0.8208635023
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EUR   -   0.9060433089
EUR   -   0.9004141905
JPY   -   106.4628586752
EUR   -   0.8938946992
USD   -   1.0
SGD   -   1.380262805
GBP   -   0.7984589346
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
USD   -   1.0
```

```
GBP  -  0.8047495062
USD  -  1.0
USD  -  1.0
JPY  -  106.4628586752
GBP  -  0.8208635023
HKD  -  7.8367748279
EUR  -  0.8938946992
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.380262805
HKD  -  7.8367748279
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.380262805
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8208635023
GBP  -  0.8208635023
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
CAD  -  1.3216233128
GBP  -  0.8208635023
EUR  -  0.8938946992
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.5496558505
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
CAD  -  1.3216233128
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8938946992
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
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EUR  -  0.8938946992
GBP  -  0.8208635023
GBP  -  0.8208635023
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USD  -  1.0
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GBP  -  0.8208635023
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EUR  -  0.8938946992
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USD  -  1.0
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EUR  -  0.8938946992
EUR  -  0.8938946992
GBP  -  0.8208635023
GBP  -  0.8208635023
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GBP  -  0.8208635023
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
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MXN  -  19.5496558505
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GBP  -  0.8208635023
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USD  -  1.0
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EUR  -  0.8938946992
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
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USD  -  1.0
EUR  -  0.8938946992
CAD  -  1.3234287772
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GBP  -  0.8208635023
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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HKD  -  7.8367748279
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GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
EUR  -  0.8938946992
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GBP  -  0.8011144793
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GBP  -  0.8208635023
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EUR  -  0.8938946992
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USD  -  1.0
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GBP  -  0.8208635023
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
GBP  -  0.8134094793
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USD   -   1.0
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USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
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GBP   -   0.8208635023
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USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8907892393
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DKK   -   6.6723875927
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USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8938946992
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USD   -   1.0
CAD   -   1.3216233128
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
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USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8938946992
USD   -   1.0
EUR   -   0.8938946992
USD   -   1.0
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GBP  -  0.8208635023
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
DKK  -  6.6723875927
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
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EUR  -  0.9004141905
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USD  -  1.0
SEK  -  9.58854027
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CAD  -  1.3216233128
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USD  -  1.0
USD  -  1.0
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GBP  -  0.8208635023
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GBP  -  0.8216776963
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
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GBP  -  0.823924005
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USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
SGD  -  1.380262805
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USD  -  1.0
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USD  -  1.0
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CAD  -  1.3180104148
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USD  -  1.0
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USD  -  1.0
GBP  -  0.8208635023
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USD  -  1.0
USD  -  1.0
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CAD  -  1.3234287772
CAD  -  1.317105971
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
GBP  -  0.823924005
GBP  -  0.825858476
GBP  -  0.7979027815
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EUR  -   0.8938946992
GBP  -   0.8208635023
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SGD  -   1.3767332973
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USD  -   1.0
USD  -   1.0
GBP  -   0.823924005
USD  -   1.0
USD  -   1.0
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USD  -   1.0
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EUR  -   0.8938946992
USD  -   1.0
GBP  -   0.8208635023
USD  -   1.0
JPY  -   106.4628586752
CAD  -   1.3234287772
NZD  -   1.4931174089
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JPY  -   106.7621105709
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CAD  -   1.3216233128
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GBP  -   0.823924005
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EUR  -   0.9004141905
AUD  -   1.4719764012
GBP  -   0.823924005
GBP  -   0.8208635023
EUR  -   0.8938946992
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USD  -   1.0
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USD  -  1.0
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EUR  -  0.8938946992
EUR  -  0.8938946992
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GBP  -  0.823924005
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EUR  -  0.9004141905
CHF  -  0.9760436221
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GBP  -  0.8047495062
USD  -  1.0
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USD  -  1.0
JPY  -  106.4628586752
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AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
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USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4735278228
USD  -  1.0
USD  -  1.0
GBP  -  0.823924005
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
MXN  -  19.5496558505
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8216572505
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3234287772
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
MXN  -  19.5496558505
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USD  -  1.0
USD  -  1.0
GBP  -  0.823924005
USD  -  1.0
EUR  -  0.9004141905
GBP  -  0.7979027815
GBP  -  0.823924005
USD  -  1.0
CAD  -  1.3234287772
USD  -  1.0
USD  -  1.0
GBP  -  0.823924005
USD  -  1.0
EUR  -  0.9004141905
EUR  -  0.9004141905
USD  -  1.0
EUR  -  0.8976660682
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.825858476
EUR  -  0.8967805578
USD  -  1.0
GBP  -  0.823924005
GBP  -  0.8208635023
CAD  -  1.3234287772
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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EUR  -  0.8938946992
EUR  -  0.8938946992
EUR  -  0.8967805578
CAD  -  1.3234287772
USD  -  1.0
GBP  -  0.8003868646
AUD  -  1.4274632189
GBP  -  0.823924005
AUD  -  1.4719764012
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4735278228
USD  -  1.0
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USD  -  1.0
CAD  -  1.3216233128
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USD  -  1.0
USD  -  1.0
AUD  -  1.4619008789
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GBP  -  0.823924005
USD  -  1.0
JPY  -  108.0971659919
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USD  -  1.0
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EUR  -  0.8938946992
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SEK  -  9.6827036332
USD  -  1.0
USD  -  1.0
GBP  -  0.825858476
CHF  -  0.9955603878
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USD  -  1.0
GBP  -  0.7979027815
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EUR  -  0.8938946992
GBP  -  0.823924005
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USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.9060433089
USD  -  1.0
EUR  -  0.9060433089
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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MXN  -  19.5496558505
USD  -  1.0
USD  -  1.0
GBP  -  0.8134094793
USD  -  1.0
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USD  -  1.0
USD  -  1.0
MXN  -  19.3176661264
MXN  -  19.5496558505
EUR  -  0.8938946992
GBP  -  0.7979027815
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.825858476
GBP  -  0.8208635023
GBP  -  0.825858476
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SEK  -  9.3759858219
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USD  -  1.0
USD  -  1.0
SGD  -  1.380262805
CAD  -  1.3230044396
EUR  -  0.8950147677
EUR  -  0.9060433089
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3230044396
USD  -  1.0
USD  -  1.0
GBP  -  0.7979027815
EUR  -  0.8965393581
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USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.825858476
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CAD  -  1.3230044396
EUR  -  0.8938946992
GBP  -  0.8002064632
USD  -  1.0
USD  -  1.0
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SGD  -  1.3751925342
USD  -  1.0
USD  -  1.0
EUR  -  0.8916629514
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
GBP  -  0.8055283103
GBP  -  0.8217052179
EUR  -  0.9060433089
AUD  -  1.4719764012
GBP  -  0.823924005
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.9060433089
GBP  -  0.825858476
GBP  -  0.8208635023
AUD  -  1.4619008789
HKD  -  7.8252242457
HKD  -  7.8252242457
USD  -  1.0
GBP  -  0.823924005
GBP  -  0.825858476
AUD  -  1.4619008789
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
NZD  -  1.52614642
USD  -  1.0
GBP  -  0.8042412902
GBP  -  0.825858476
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HKD  -   7.8367748279
GBP  -   0.7979027815
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USD  -   1.0
USD  -   1.0
AUD  -   1.4619008789
AUD  -   1.4619008789
USD  -   1.0
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USD  -   1.0
USD  -   1.0
HKD  -   7.8252242457
USD  -   1.0
USD  -   1.0
CAD  -   1.3230044396
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
EUR  -   0.9060433089
AUD  -   1.4719764012
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
SGD  -   1.3685768093
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
GBP  -   0.8216572505
USD  -   1.0
USD  -   1.0
GBP  -   0.8216572505
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
AUD  -   1.4438857964
AUD  -   1.4505425522
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3180104148
EUR  -  0.8916629514
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
EUR  -  0.8965393581
GBP  -  0.8216572505
EUR  -  0.8967805578
EUR  -  0.8938946992
USD  -  1.0
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USD  -  1.0
USD  -  1.0
GBP  -  0.8216572505
GBP  -  0.8216572505
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USD  -  1.0
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GBP  -  0.8216572505
EUR  -  0.8967805578
USD  -  1.0
GBP  -  0.8216572505
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.897827258
USD  -  1.0
MXN  -  19.5496558505
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CAD  -  1.3216233128
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USD  -  1.0
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EUR  -  0.8967805578
MXN  -  19.5496558505
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GBP  -  0.8047495062
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8861320337
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EUR  -  0.8950147677
HKD  -  7.827907811
USD  -  1.0
AUD  -  1.4619008789
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3148596538
USD  -  1.0
GBP  -  0.8216572505
EUR  -  0.8967805578
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USD  -  1.0
USD  -  1.0
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EUR  -  0.8967805578
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USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
GBP  -  0.8022113241
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EUR  -  0.8938946992
USD  -  1.0
GBP  -  0.8022113241
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
GBP  -  0.825858476
GBP  -  0.8216572505
GBP  -  0.8216572505
USD  -  1.0
EUR  -  0.8967805578
NZD  -  1.4992446459
GBP  -  0.8216572505
GBP  -  0.8216572505
SGD  -  1.380262805
GBP  -  0.8208635023
EUR  -  0.8967805578
EUR  -  0.8910273545
EUR  -  0.8993614534
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GBP  -  0.8216572505
AUD  -  1.4514075668
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GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.3685768093
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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CAD  -  1.3055728934
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8216572505
USD  -  1.0
SGD  -  1.3685768093
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8216572505
USD  -  1.0
EUR  -  0.8967805578
CAD  -  1.3054516301
AUD  -  1.4619008789
GBP  -  0.8217052179
GBP  -  0.825858476
SEK  -  9.58854027
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
EUR  -  0.8965393581
GBP  -  0.7979027815
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
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GBP  -  0.8217052179
USD  -  1.0
GBP  -  0.8217052179
USD  -  1.0
EUR  -  0.8965393581
GBP  -  0.8217052179
SEK  -  9.58854027
GBP  -  0.7979027815
USD  -  1.0
SEK  -  9.479709104
GBP  -  0.8217052179
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USD  -   1.0
USD  -   1.0
USD  -   1.0
CAD  -   1.317105971
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
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HKD  -   7.8231127847
USD  -   1.0
USD  -   1.0
MXN  -   19.0458131612
CAD  -   1.317105971
MXN  -   19.5496558505
USD  -   1.0
USD  -   1.0
AUD  -   1.4719764012
USD  -   1.0
CAD  -   1.3213199785
USD  -   1.0
CAD  -   1.3171148485
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
GBP  -   0.8208635023
USD  -   1.0
USD  -   1.0
MXN  -   19.0373496139
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CAD  -   1.3054516301
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CAD  -   1.3171148485
NOK  -   8.7294244217
USD  -   1.0
AUD  -   1.4488713014
CAD  -   1.3124497992
EUR  -   0.8993614534
CAD  -   1.3054516301
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JPY  -  108.6518571814
GBP  -  0.8134094793
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CAD  -  1.3171148485
EUR  -  0.897827258
HKD  -  7.8187786671
USD  -  1.0
GBP  -  0.7975241814
EUR  -  0.8993614534
EUR  -  0.8907892393
AUD  -  1.4719764012
GBP  -  0.8134094793
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
AUD  -  1.4719764012
AUD  -  1.4218652942
MXN  -  19.1392280072
MXN  -  19.0705998741
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USD  -  1.0
HKD  -  7.8367748279
HKD  -  7.8181001975
USD  -  1.0
CAD  -  1.3054516301
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3180104148
GBP  -  0.8047495062
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.897827258
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GBP  -  0.8208635023
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GBP  -  0.8047495062
GBP  -  0.8208635023
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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EUR  -  0.8965393581
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EUR  -  0.897827258
EUR  -  0.8916629514
USD  -  1.0
GBP  -  0.8011144793
USD  -  1.0
DKK  -  6.6723875927
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EUR  -  0.8967805578
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USD  -  1.0
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EUR  -  0.897827258
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USD  -  1.0
USD  -  1.0
CAD  -  1.3234287772
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
GBP  -  0.7975241814
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.5496558505
EUR  -  0.897827258
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3180104148
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EUR  -  0.897827258
GBP  -  0.7979027815
USD  -  1.0
USD  -  1.0
GBP  -  0.8003868646
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USD  -  1.0
USD  -  1.0
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GBP  -  0.8003868646
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GBP  -  0.8047495062
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USD  -  1.0
EUR  -  0.897827258
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8208635023
EUR  -  0.897827258
EUR  -  0.897827258
USD  -  1.0
USD  -  1.0
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GBP  -  0.823924005
GBP  -  0.8011144793
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AUD  -  1.4719764012
GBP  -  0.8014973262
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CAD  -  1.3230044396
GBP  -  0.8047495062
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AUD  -  1.4188140883
EUR  -  0.8916629514
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USD  -  1.0
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GBP  -  0.8047495062
USD  -  1.0
CAD  -  1.3180104148
CAD  -  1.3054516301
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
NOK  -  8.7179602482
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

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USD  -   1.0
GBP  -   0.8014973262
USD  -   1.0
USD  -   1.0
USD  -   1.0
EUR  -   0.8938946992
USD  -   1.0
USD  -   1.0
EUR  -   0.8916629514
USD  -   1.0
SEK  -   9.3774409273
CAD  -   1.3180104148
USD  -   1.0
USD  -   1.0
MXN  -   19.0373496139
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
SEK  -   9.58854027
USD  -   1.0
USD  -   1.0
EUR  -   0.897827258
GBP  -   0.8047495062
USD  -   1.0
EUR  -   0.8915834522
EUR  -   0.8938946992
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
AUD  -   1.4719764012
GBP  -   0.8208635023
USD  -   1.0
EUR  -   0.8938946992
EUR  -   0.8967805578
EUR  -   0.897827258
SGD  -   1.3560418143
EUR  -   0.8996851102
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
EUR  -   0.8915834522
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USD  -  1.0
GBP  -  0.8014973262
CAD  -  1.3180104148
GBP  -  0.8208635023
USD  -  1.0
AUD  -  1.4438857964
EUR  -  0.8938946992
USD  -  1.0
GBP  -  0.8011144793
GBP  -  0.8047495062
SEK  -  9.5637162586
GBP  -  0.8022113241
NOK  -  8.7011133058
EUR  -  0.897827258
GBP  -  0.8047495062
GBP  -  0.8002064632
SGD  -  1.3684683067
GBP  -  0.8047495062
AUD  -  1.4438857964
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
EUR  -  0.897827258
NZD  -  1.52614642
GBP  -  0.8047495062
EUR  -  0.8938946992
USD  -  1.0
GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
AUD  -  1.4438857964
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.827907811
GBP  -  0.8022113241
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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CHF  -  0.9760436221
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USD  -  1.0
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EUR  -  0.8938946992
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USD  -  1.0
USD  -  1.0
CAD  -  1.3230044396
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8042412902
USD  -  1.0
USD  -  1.0
EUR  -  0.8950147677
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8910273545
USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.8996851102
USD  -  1.0
MXN  -  18.9964012596
USD  -  1.0
USD  -  1.0
GBP  -  0.8003868646
GBP  -  0.8029897367
USD  -  1.0
USD  -  1.0
CAD  -  1.3127305443
EUR  -  0.8965393581
USD  -  1.0
USD  -  1.0
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USD  -  1.0
EUR  -  0.8938946992
SEK  -  9.5637162586
MXN  -  19.5496558505
CAD  -  1.3047313553
AUD  -  1.4343679712
USD  -  1.0
MXN  -  19.3176661264
USD  -  1.0
EUR  -  0.8942944017
MXN  -  18.9964012596
USD  -  1.0
GBP  -  0.8003868646
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3127305443
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8029897367
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.8208635023
CAD  -  1.3033857638
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8996851102
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.8938946992
EUR  -  0.8916629514
USD  -  1.0
CAD  -  1.313016158
GBP  -  0.8208635023
USD  -  1.0
HKD  -  7.8267603097
EUR  -  0.8938946992
GBP  -  0.8003868646
USD  -  1.0
GBP  -  0.8011144793
GBP  -  0.8003868646
SGD  -  1.3656320288
AUD  -  1.4314576872
DKK  -  6.6723875927
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8996851102
USD  -  1.0
CAD  -  1.317105971
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
AUD  -  1.4425702811
AUD  -  1.4343679712
USD  -  1.0
JPY  -  108.9126559715
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AUD  -  1.4719764012
USD  -  1.0
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USD  -  1.0
USD  -  1.0
AUD  -  1.4438857964
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USD  -  1.0
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GBP  -  0.7984589346
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SEK  -  9.479709104
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USD  -  1.0
USD  -  1.0
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GBP  -  0.7991529202
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8976660682
GBP  -  0.8002064632
USD  -  1.0
CHF  -  0.9858168761
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8002064632
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.8047495062
GBP  -  0.8002064632
USD  -  1.0
GBP  -  0.8002064632
GBP  -  0.8002064632
USD  -  1.0
GBP  -  0.8002064632
USD  -  1.0
USD  -  1.0
EUR  -  0.8976660682
GBP  -  0.8002064632
EUR  -  0.8916629514
EUR  -  0.8938946992
EUR  -  0.8996851102
EUR  -  0.8938946992
CAD  -  1.313016158
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.8996851102
USD  -  1.0
USD  -  1.0
GBP  -  0.8002064632
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8216572505
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EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
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EUR  -  0.8976660682
AUD  -  1.4326750449
EUR  -  0.8938946992
USD  -  1.0
GBP  -  0.8002064632
GBP  -  0.8002064632
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GBP  -  0.8002064632
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GBP  -  0.8002064632
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EUR  -  0.8976660682
SGD  -  1.380262805
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CHF  -  0.9926252361
USD  -  1.0
CAD  -  1.3076237182
EUR  -  0.8907892393
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3065719361
GBP  -  0.7979027815
EUR  -  0.8942944017
USD  -  1.0
USD  -  1.0
AUD  -  1.4228944778
AUD  -  1.4228944778
GBP  -  0.8039917659
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
EUR  -  0.888651915
GBP  -  0.8039917659
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
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CAD  -  1.3148661953
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
GBP  -  0.823924005
GBP  -  0.7979027815
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8950147677
EUR  -  0.8950147677
EUR  -  0.8938946992
EUR  -  0.8938946992
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
JPY  -  106.4628586752
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
MXN  -  19.5496558505
USD  -  1.0
CAD  -  1.3076237182
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.897827258
USD  -  1.0
CAD  -  1.3047313553
GBP  -  0.7979027815
USD  -  1.0
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USD  -  1.0
USD  -  1.0
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GBP  -  0.8002064632
GBP  -  0.8208635023
EUR  -  0.8967805578
USD  -  1.0
GBP  -  0.8022113241
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AUD  -  1.4188140883
USD  -  1.0
MXN  -  18.9939609236
CAD  -  1.3076237182
USD  -  1.0
USD  -  1.0
JPY  -  108.1356842388
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3054516301
USD  -  1.0
USD  -  1.0
CAD  -  1.3054516301
GBP  -  0.7984589346
CAD  -  1.3054516301
EUR  -  0.8907892393
USD  -  1.0
GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8942944017
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
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EUR  -  0.8907892393
GBP  -  0.8216572505
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USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8907892393
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
GBP  -  0.7979027815
CAD  -  1.3148661953
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.8039917659
HKD  -  7.8051843934
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
GBP  -  0.8208635023
EUR  -  0.8907892393
GBP  -  0.7984589346
USD  -  1.0
GBP  -  0.7984589346
EUR  -  0.8907892393
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3054516301
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.1392280072
USD  -  1.0
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SEK  -  9.3759858219
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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NOK  -  8.5638695885
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8965393581
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
GBP  -  0.7984589346
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3054516301
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
JPY  -  106.7621105709
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USD  -  1.0
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GBP  -  0.7949149539
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CAD  -  1.3124497992
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USD  -  1.0
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USD  -  1.0
EUR  -  0.8907892393
USD  -  1.0
EUR  -  0.8907892393
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
CAD  -  1.317105971
USD  -  1.0
GBP  -  0.7984589346
EUR  -  0.8907892393
USD  -  1.0
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
GBP  -  0.7984589346
EUR  -  0.9004141905
AUD  -  1.4175129164
GBP  -  0.7984589346
HKD  -  7.8051843934
USD  -  1.0
EUR  -  0.8942944017
AUD  -  1.4175129164
USD  -  1.0
USD  -  1.0
USD  -  1.0
JPY  -  106.4628586752
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USD   -   1.0
USD   -   1.0
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USD   -   1.0
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USD   -   1.0
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USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7984589346
USD   -   1.0
USD   -   1.0
GBP   -   0.8011144793
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
```

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USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
SEK  -  9.58854027
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
EUR  -  0.8938946992
GBP  -  0.7984589346
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
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EUR  -  0.8907892393
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3054516301
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
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USD   -   1.0
USD   -   1.0
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AUD   -   1.4175129164
EUR   -   0.8938946992
USD   -   1.0
HKD   -   7.8252242457
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USD   -   1.0
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EUR   -   0.8907892393
USD   -   1.0
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EUR   -   0.8938946992
DKK   -   6.6358304452
EUR   -   0.8916629514
GBP   -   0.7984589346
MXN   -   19.0705998741
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GBP   -   0.8208635023
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CAD   -   1.3234287772
USD   -   1.0
CAD   -   1.3216233128
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
MXN   -   19.5496558505
SGD   -   1.380262805
JPY   -   108.9126559715
EUR   -   0.8787346221
USD   -   1.0
USD   -   1.0
USD   -   1.0
AUD   -   1.4175129164
USD   -   1.0
USD   -   1.0
NZD   -   1.5140346157
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
USD   -   1.0
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EUR  -  0.8924587238
EUR  -  0.897827258
AUD  -  1.4215406562
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8047495062
MXN  -  19.0220915731
MXN  -  19.0608059914
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
DKK  -  6.6508106182
USD  -  1.0
USD  -  1.0
USD  -  1.0
NOK  -  8.8982747832
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USD  -  1.0
USD  -  1.0
CAD  -  1.3148661953
GBP  -  0.7984589346
USD  -  1.0
GBP  -  0.8011144793
GBP  -  0.8042412902
USD  -  1.0
USD  -  1.0
CAD  -  1.3061697575
USD  -  1.0
CAD  -  1.3234287772
EUR  -  0.8907892393
USD  -  1.0
USD  -  1.0
GBP  -  0.8011144793
USD  -  1.0
EUR  -  0.8915834522
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3061697575
CHF  -  0.9901354139
GBP  -  0.8208635023
GBP  -  0.7984589346
```

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EUR  -  0.8915834522
USD  -  1.0
USD  -  1.0
HKD  -  7.8367748279
EUR  -  0.8915834522
USD  -  1.0
USD  -  1.0
EUR  -  0.8965393581
EUR  -  0.8907892393
SGD  -  1.3603483516
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8915834522
GBP  -  0.8022113241
CAD  -  1.3055728934
USD  -  1.0
JPY  -  107.1039690903
GBP  -  0.8217052179
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8915834522
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8950147677
USD  -  1.0
USD  -  1.0
EUR  -  0.8924587238
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8910273545
EUR  -  0.8855042947
CAD  -  1.3100150536
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.8011144793
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USD  -  1.0
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GBP  -  0.825858476
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GBP  -  0.8011144793
GBP  -  0.8011144793
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USD  -  1.0
USD  -  1.0
GBP  -  0.8011144793
USD  -  1.0
GBP  -  0.8011144793
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USD  -  1.0
GBP  -  0.8011144793
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USD  -  1.0
USD  -  1.0
GBP  -  0.8039917659
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GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
USD  -  1.0
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EUR  -  0.8907892393
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SGD  -  1.3684683067
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.888651915
GBP  -  0.7979027815
EUR  -  0.8915834522
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3100150536
CAD  -  1.3054516301
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.8022113241
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GBP  -  0.8208635023
GBP  -  0.7979027815
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
NZD  -  1.52614642
USD  -  1.0
USD  -  1.0
GBP  -  0.8055283103
USD  -  1.0
EUR  -  0.8910273545
CHF  -  0.9893000446
EUR  -  0.8916629514
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USD  -  1.0
GBP  -  0.7878295255
CAD  -  1.3216233128
USD  -  1.0
CAD  -  1.306642889
CAD  -  1.306642889
USD  -  1.0
USD  -  1.0
CHF  -  0.9893000446
GBP  -  0.8055283103
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USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.0220915731
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USD  -  1.0
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GBP  -  0.8022113241
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
CAD  -  1.306642889
USD  -  1.0
USD  -  1.0
EUR  -  0.8916629514
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GBP  -  0.8208635023
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USD  -  1.0
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GBP  -  0.8055283103
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.311299885
USD  -  1.0
USD  -  1.0
CAD  -  1.313016158
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3047313553
HKD  -  7.8175175978
USD  -  1.0
EUR  -  0.8938946992
NZD  -  1.4873919629
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
GBP  -  0.8042412902
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8003868646
GBP  -  0.8208635023
MXN  -  18.9939609236
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GBP  -  0.8208635023
GBP  -  0.7991529202
EUR  -  0.8942944017
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GBP  -  0.8042412902
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
GBP  -  0.7979027815
USD  -  1.0
GBP  -  0.7991529202
CAD  -  1.3047313553
USD  -  1.0
USD  -  1.0
CAD  -  1.3047313553
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3030437483
GBP  -  0.7979027815
USD  -  1.0
USD  -  1.0
EUR  -  0.8873901855
EUR  -  0.8873901855
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USD  -  1.0
USD  -  1.0
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SEK  -  9.2823374341
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USD  -  1.0
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GBP  -  0.7975241814
GBP  -  0.7984589346
USD  -  1.0
GBP  -  0.7975241814
EUR  -  0.8873901855
EUR  -  0.8938946992
EUR  -  0.8912655971
GBP  -  0.796651865
USD  -  1.0
GBP  -  0.7975241814
GBP  -  0.8216572505
EUR  -  0.8873901855
GBP  -  0.823924005
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JPY  -  106.4628586752
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
MXN  -  19.0766906603
NZD  -  1.5003981949
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USD  -  1.0
USD  -  1.0
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MXN  -  19.0766906603
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
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GBP  -  0.8208635023
USD  -  1.0
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MXN  -  19.0766906603
EUR  -  0.8880994671
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GBP  -  0.7979027815
MXN  -  18.9939609236
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USD  -  1.0
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EUR  -  0.888651915
USD  -  1.0
USD  -  1.0
SGD  -  1.3715262164
GBP  -  0.7949149539
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
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GBP  -  0.823924005
CAD  -  1.3033857638
MXN  -  19.5496558505
CAD  -  1.3065719361
GBP  -  0.7979027815
USD  -  1.0
GBP  -  0.7991529202
MXN  -  19.0220915731
USD  -  1.0
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GBP  -  0.7979027815
GBP  -  0.8014973262
EUR  -  0.8938946992
SEK  -  9.3766106816
USD  -  1.0
GBP  -  0.7979027815
EUR  -  0.8924587238
USD  -  1.0
GBP  -  0.7979027815
GBP  -  0.7979027815
EUR  -  0.8787346221
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
AUD  -  1.4309073136
AUD  -  1.4309073136
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
MXN  -  19.5496558505
USD  -  1.0
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MXN  -  19.0766906603
USD  -  1.0
AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3030437483
GBP  -  0.8208635023
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USD  -  1.0
USD  -  1.0
EUR  -  0.8855042947
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USD  -  1.0
HKD  -  7.8181001975
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GBP  -  0.8208635023
USD  -  1.0
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EUR  -  0.888651915
USD  -  1.0
GBP  -  0.8047495062
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.888651915
EUR  -  0.8950147677
USD  -  1.0
SGD  -  1.3603483516
USD  -  1.0
USD  -  1.0
GBP  -  0.795657953
USD  -  1.0
GBP  -  0.7979027815
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.825858476
USD  -  1.0
USD  -  1.0
USD  -  1.0
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EUR  -   0.8873901855
GBP  -   0.7984589346
USD  -   1.0
USD  -   1.0
EUR  -   0.8880994671
EUR  -   0.8858965273
GBP  -   0.796651865
GBP  -   0.7979027815
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GBP  -   0.795657953
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EUR  -   0.888651915
EUR  -   0.8880994671
GBP  -   0.7979027815
GBP  -   0.8208635023
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USD  -   1.0
MXN  -   19.0766906603
USD  -   1.0
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USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
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USD  -   1.0
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USD  -   1.0
USD  -   1.0
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USD  -   1.0
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EUR  -   0.8938946992
USD  -   1.0
EUR  -   0.888651915
CAD  -   1.3216233128
MXN  -   19.5496558505
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7979027815
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7979027815
CAD  -  1.3033857638
USD  -  1.0
EUR  -  0.8938946992
GBP  -  0.7979027815
EUR  -  0.8855042947
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8022113241
USD  -  1.0
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GBP  -  0.7979027815
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3033857638
GBP  -  0.7979027815
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EUR  -  0.888651915
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GBP  -  0.7979027815
GBP  -  0.7886199613
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USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8855042947
USD  -  1.0
CAD  -  1.3033857638
GBP  -  0.7979027815
USD  -  1.0
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SGD  -  1.3571936057
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
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GBP  -  0.7979027815
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MXN  -  19.2132825949
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USD  -  1.0
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CAD  -  1.3076237182
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CAD  -  1.3191153239
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
EUR  -  0.9004141905
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USD  -  1.0
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USD  -  1.0
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GBP  -  0.795657953
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8014973262
USD  -  1.0
USD  -  1.0
CAD  -  1.3148661953
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
CAD  -  1.3057155516
HKD  -  7.8051843934
GBP  -  0.7886199613
USD  -  1.0
USD  -  1.0
GBP  -  0.795657953
USD  -  1.0
USD  -  1.0
GBP  -  0.7979027815
EUR  -  0.8855042947
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3065719361
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3057155516
CAD  -  1.3057155516
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
GBP   -   0.8055283103
USD   -   1.0
HKD   -   7.8181001975
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
GBP   -   0.7905366112
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
HKD   -   7.8051843934
GBP   -   0.7905366112
USD   -   1.0
EUR   -   0.8861320337
USD   -   1.0
GBP   -   0.8208635023
EUR   -   0.8916629514
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8967805578
USD   -   1.0
USD   -   1.0
GBP   -   0.7902527395
EUR   -   0.8938946992
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.795657953
USD   -   1.0
USD   -   1.0
GBP   -   0.795657953
USD   -   1.0
USD   -   1.0
EUR   -   0.8861320337
GBP   -   0.795657953
```

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EUR  -  0.888651915
GBP  -  0.795657953
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8047495062
EUR  -  0.897827258
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8861320337
EUR  -  0.8924587238
CHF  -  0.9848471422
USD  -  1.0
HKD  -  7.821355782
EUR  -  0.8880994671
AUD  -  1.4719764012
USD  -  1.0
SEK  -  9.3759858219
GBP  -  0.8216572505
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4425702811
DKK  -  6.764519344
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.1303500222
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AUD  -  1.4719764012
USD  -  1.0
USD  -  1.0
CAD  -  1.3030437483
JPY  -  107.7231427044
EUR  -  0.8938946992
USD  -  1.0
HKD  -  7.8181001975
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
MXN  -  19.0705998741
AUD  -  1.444741533
USD  -  1.0
USD  -  1.0
MXN  -  19.5496558505
USD  -  1.0
GBP  -  0.8014973262
USD  -  1.0
EUR  -  0.888651915
USD  -  1.0
NZD  -  1.4965883917
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8844078889
USD  -  1.0
CAD  -  1.3054516301
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
GBP  -  0.8014973262
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
USD  -  1.0
CAD  -  1.3216233128
USD  -  1.0
JPY  -  108.9126559715
USD  -  1.0
GBP  -  0.8014973262
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
EUR  -  0.8795074758
USD  -  1.0
GBP  -  0.7902527395
USD  -  1.0
SGD  -  1.3656320288
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USD  -  1.0
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NZD  -  1.5148841355
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GBP  -  0.8216572505
GBP  -  0.8208635023
EUR  -  0.888651915
GBP  -  0.796651865
EUR  -  0.8938946992
EUR  -  0.8781173165
GBP  -  0.825858476
USD  -  1.0
GBP  -  0.8014973262
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8156862745
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
EUR  -  0.8912655971
EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
EUR  -  0.8996851102
USD  -  1.0
EUR  -  0.8938946992
EUR  -  0.8907892393
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USD  -  1.0
CAD  -  1.3033857638
GBP  -  0.7843163068
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8003868646
GBP  -  0.8014973262
GBP  -  0.7905366112
CAD  -  1.3127305443
EUR  -  0.8912655971
USD  -  1.0
GBP  -  0.8014973262
USD  -  1.0
HKD  -  7.8156862745
USD  -  1.0
CAD  -  1.3113190731
USD  -  1.0
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GBP  -  0.7865259455
USD  -  1.0
USD  -  1.0
CAD  -  1.3065719361
CAD  -  1.3098951449
EUR  -  0.8912655971
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8014973262
USD  -  1.0
GBP  -  0.8014973262
USD  -  1.0
USD  -  1.0
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EUR  -  0.8938946992
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USD  -  1.0
GBP  -  0.8216572505
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EUR  -  0.8776549061
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USD  -  1.0
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GBP  -  0.8208635023
USD  -  1.0
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EUR  -  0.8938946992
SEK  -  9.4557040998
GBP  -  0.7991529202
USD  -  1.0
USD  -  1.0
USD  -  1.0
JPY  -  108.9126559715
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8924587238
GBP  -  0.796651865
USD  -  1.0
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NOK  -  8.8982747832
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EUR  -  0.8938946992
EUR  -  0.8924587238
GBP  -  0.8029897367
USD  -  1.0
USD  -  1.0
EUR  -  0.8924587238
GBP  -  0.8208635023
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
MXN  -  19.0220915731
USD  -  1.0
USD  -  1.0
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GBP  -  0.8029897367
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
CHF  -  0.9760436221
GBP  -  0.8029897367
EUR  -  0.9004141905
GBP  -  0.8003868646
GBP  -  0.8014973262
USD  -  1.0
USD  -  1.0
AUD  -  1.4425702811
USD  -  1.0
MXN  -  18.9550601872
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USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
EUR  -  0.8924587238
USD  -  1.0
EUR  -  0.8996851102
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.7991529202
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USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
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GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
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EUR  -  0.8938946992
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USD  -  1.0
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USD  -  1.0
EUR  -  0.8837044892
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
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EUR  -  0.8916629514
GBP  -  0.8047495062
EUR  -  0.8916629514
EUR  -  0.8916629514
USD  -  1.0
USD  -  1.0
CAD  -  1.3055728934
USD  -  1.0
USD  -  1.0
SGD  -  1.380262805
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4436189971
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8208635023
JPY  -  108.1438721137
GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
EUR  -  0.8880994671
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EUR  -  0.8787346221
SEK  -  9.2823374341
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.796651865
USD  -  1.0
EUR  -  0.8880994671
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.823924005
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8916629514
MXN  -  18.9939609236
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USD  -  1.0
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USD  -  1.0
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HKD  -  7.8367748279
GBP  -  0.796651865
GBP  -  0.796651865
CAD  -  1.3098951449
EUR  -  0.8916629514
EUR  -  0.8916629514
GBP  -  0.7991529202
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  18.9939609236
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USD  -  1.0
USD  -  1.0
HKD  -  7.7937833037
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3191940615
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USD  -  1.0
USD  -  1.0
CAD  -  1.3165295834
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USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4260213144
USD  -  1.0
GBP  -  0.7865259455
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7905366112
AUD  -  1.4297294916
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
DKK  -  6.628330373
GBP  -  0.796651865
USD  -  1.0
EUR  -  0.8924587238
GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
USD  -  1.0
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EUR  -  0.8880994671
GBP  -  0.796651865
SEK  -  9.5122016626
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USD  -  1.0
GBP  -  0.7865259455
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3213199785
GBP  -  0.8216776963
CAD  -  1.3213199785
USD  -  1.0
USD  -  1.0
EUR  -  0.8837044892
HKD  -  7.8374172778
GBP  -  0.8047495062
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HKD  -  7.7937833037
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GBP  -  0.8217052179
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
EUR  -  0.8916629514
USD  -  1.0
USD  -  1.0
GBP  -  0.796651865
CAD  -  1.3213199785
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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EUR  -  0.8877052818
EUR  -  0.8942944017
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SEK  -  9.5637162586
SEK  -  9.394485684
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EUR  -  0.8858965273
CAD  -  1.3213199785
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SGD  -  1.3571936057
USD  -  1.0
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MXN  -  19.1809143364
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.796651865
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
GBP  -  0.8047495062
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.796651865
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USD  -  1.0
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GBP  -  0.796651865
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EUR  -  0.8880994671
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USD  -  1.0
USD  -  1.0
CAD  -  1.3066087881
EUR  -  0.888651915
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USD  -  1.0
CAD  -  1.3100150536
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CAD  -  1.3054516301
USD  -  1.0
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USD  -  1.0
GBP  -  0.7949149539
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USD  -  1.0
EUR  -  0.8858965273
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USD  -  1.0
CAD  -  1.3066087881
USD  -  1.0
USD  -  1.0
AUD  -  1.4241672573
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EUR  -  0.8787346221
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USD  -  1.0
EUR  -  0.8858965273
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8795074758
EUR  -  0.8858965273
GBP  -  0.823924005
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USD  -  1.0
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USD  -  1.0
AUD  -  1.4349315068
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.823924005
GBP  -  0.7949149539
USD  -  1.0
CAD  -  1.3054516301
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USD  -  1.0
USD  -  1.0
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GBP  -  0.7949149539
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3066087881
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3066087881
USD  -  1.0
```

```
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3234287772
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.9004141905
CAD  -  1.3100150536
CAD  -  1.3100150536
EUR  -  0.8915834522
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7905366112
DKK  -  6.6358304452
USD  -  1.0
USD  -  1.0
MXN  -  19.3176661264
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
GBP  -  0.7947401045
EUR  -  0.9004141905
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8837044892
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3234287772
USD  -  1.0
GBP  -  0.823924005
GBP  -  0.7914609327
USD  -  1.0
GBP  -  0.823924005
USD  -  1.0
USD  -  1.0
```

```
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8855042947
USD  -  1.0
EUR  -  0.8858965273
USD  -  1.0
SEK  -  9.3706574025
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8855042947
USD  -  1.0
USD  -  1.0
EUR  -  0.8858965273
GBP  -  0.7947401045
USD  -  1.0
EUR  -  0.9004141905
USD  -  1.0
CAD  -  1.3191940615
USD  -  1.0
CAD  -  1.3413743991
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8848774445
GBP  -  0.8042412902
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.3176661264
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
JPY  -  108.7367491166
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USD  -  1.0
USD  -  1.0
GBP  -  0.7947401045
GBP  -  0.7947401045
USD  -  1.0
HKD  -  7.8102916557
CAD  -  1.3061697575
JPY  -  107.686177278
USD  -  1.0
USD  -  1.0
EUR  -  0.8950147677
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3100150536
CAD  -  1.3172637864
EUR  -  0.8855042947
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.3564154786
USD  -  1.0
GBP  -  0.823924005
NOK  -  8.5580922042
USD  -  1.0
EUR  -  0.8776549061
EUR  -  0.8855042947
GBP  -  0.823924005
EUR  -  0.8858965273
GBP  -  0.7947401045
EUR  -  0.9004141905
GBP  -  0.796651865
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USD  -  1.0
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USD  -  1.0
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AUD  -  1.4365985311
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EUR  -  0.8855042947
CAD  -  1.306642889
AUD  -  1.4216341442
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
CAD  -  1.3086994728
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7914609327
GBP  -  0.7902527395
GBP  -  0.7914609327
USD  -  1.0
GBP  -  0.7914609327
USD  -  1.0
GBP  -  0.7914609327
USD  -  1.0
USD  -  1.0
EUR  -  0.8848774445
USD  -  1.0
USD  -  1.0
HKD  -  7.8300694321
USD  -  1.0
GBP  -  0.8022113241
EUR  -  0.8848774445
GBP  -  0.7908832668
GBP  -  0.825858476
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
AUD  -  1.448038176
GBP  -  0.7897354216
EUR  -  0.8855042947
EUR  -  0.8848774445
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4619008789
USD  -  1.0
GBP  -  0.7914609327
USD  -  1.0
USD  -  1.0
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USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
GBP  -   0.796651865
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
CAD  -   1.3098951449
USD  -   1.0
MXN  -   18.9939609236
USD  -   1.0
USD  -   1.0
GBP  -   0.7878295255
USD  -   1.0
USD  -   1.0
GBP  -   0.7905366112
GBP  -   0.7905366112
USD  -   1.0
CHF  -   0.9828077677
EUR  -   0.8811349018
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
EUR  -   0.8811349018
EUR  -   0.8837044892
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
AUD  -   1.4297294916
GBP  -   0.7908832668
USD  -   1.0
USD  -   1.0
USD  -   1.0
CAD  -   1.3148596538
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
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EUR  -  0.8967805578
AUD  -  1.4490901021
SGD  -  1.3528119508
USD  -  1.0
MXN  -  19.0121962156
EUR  -  0.8787346221
MXN  -  19.184298539
EUR  -  0.8967805578
EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
USD  -  1.0
USD  -  1.0
GBP  -  0.7884938534
EUR  -  0.8861320337
SEK  -  9.291567539
CHF  -  0.981672394
CAD  -  1.3098951449
USD  -  1.0
USD  -  1.0
EUR  -  0.8811349018
EUR  -  0.8811349018
GBP  -  0.7905366112
EUR  -  0.8910273545
USD  -  1.0
USD  -  1.0
EUR  -  0.8811349018
USD  -  1.0
AUD  -  1.4297294916
USD  -  1.0
USD  -  1.0
NZD  -  1.4903339192
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3098951449
USD  -  1.0
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USD  -  1.0
CAD  -  1.3098951449
```

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USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7905366112
AUD  -  1.4505425522
USD  -  1.0
HKD  -  7.8102916557
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4274165202
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
AUD  -  1.4274165202
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.0458131612
GBP  -  0.7897354216
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.317105971
CAD  -  1.3086994728
EUR  -  0.8880994671
USD  -  1.0
NOK  -  8.5595616826
USD  -  1.0
CAD  -  1.317105971
USD  -  1.0
AUD  -  1.4274165202
EUR  -  0.8915834522
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
CAD  -  1.3086994728
USD  -  1.0
EUR  -  0.8781173165
USD  -  1.0
GBP  -  0.7902527395
EUR  -  0.8965393581
SEK  -  9.5128159007
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```
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3086994728
CAD  -  1.317105971
USD  -  1.0
USD  -  1.0
GBP  -  0.8047495062
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7908832668
USD  -  1.0
USD  -  1.0
USD  -  1.0
JPY  -  107.7328646749
CAD  -  1.3331557923
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.317105971
JPY  -  108.4812623274
HKD  -  7.8040881338
EUR  -  0.8787346221
USD  -  1.0
EUR  -  0.8811349018
USD  -  1.0
EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
MXN  -  18.942763333
GBP  -  0.7878295255
USD  -  1.0
AUD  -  1.4274165202
EUR  -  0.8965393581
USD  -  1.0
CHF  -  0.9952063915
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
GBP  -  0.8217052179
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USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7991686779
AUD   -   1.4297294916
GBP   -   0.7878295255
GBP   -   0.7905366112
EUR   -   0.8787346221
USD   -   1.0
GBP   -   0.8217052179
GBP   -   0.8217052179
HKD   -   7.8231127847
USD   -   1.0
EUR   -   0.8787346221
HKD   -   7.8040881338
GBP   -   0.7878295255
USD   -   1.0
USD   -   1.0
AUD   -   1.4274165202
CAD   -   1.3086994728
CAD   -   1.317105971
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3030437483
SEK   -   9.4797044686
GBP   -   0.7905366112
MXN   -   19.0705998741
USD   -   1.0
GBP   -   0.7878295255
USD   -   1.0
AUD   -   1.4274632189
EUR   -   0.8993614534
USD   -   1.0
GBP   -   0.7878295255
GBP   -   0.7905366112
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3129287599
SEK   -   9.5128159007
EUR   -   0.8976660682
USD   -   1.0
MXN   -   18.985205528
USD   -   1.0
MXN   -   19.7378692451
USD   -   1.0
USD   -   1.0
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USD  -  1.0
USD  -  1.0
GBP  -  0.7991686779
GBP  -  0.7866140335
USD  -  1.0
USD  -  1.0
AUD  -  1.4274165202
EUR  -  0.8993614534
EUR  -  0.8877052818
EUR  -  0.8993614534
GBP  -  0.8134094793
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
GBP  -  0.7860642642
GBP  -  0.7865259455
CAD  -  1.3171148485
GBP  -  0.8134094793
CAD  -  1.3086994728
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
DKK  -  6.5585237258
USD  -  1.0
EUR  -  0.8993614534
USD  -  1.0
CAD  -  1.3086994728
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
EUR  -  0.8858965273
USD  -  1.0
EUR  -  0.8858965273
GBP  -  0.8134094793
USD  -  1.0
```

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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CHF  -  0.9758347979
JPY  -  107.7328646749
GBP  -  0.7878295255
EUR  -  0.888651915
GBP  -  0.8134094793
GBP  -  0.8134094793
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
NZD  -  1.4903339192
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.0766906603
USD  -  1.0
USD  -  1.0
SGD  -  1.3715262164
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
CAD  -  1.3113190731
USD  -  1.0
GBP  -  0.7878295255
CAD  -  1.3422722803
GBP  -  0.7873412099
GBP  -  0.7878295255
USD  -  1.0
MXN  -  19.0373496139
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8916629514
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GBP  -  0.7866140335
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8047495062
MXN  -  18.9550601872
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
HKD  -  7.8089630931
USD  -  1.0
USD  -  1.0
GBP  -  0.8047495062
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
GBP  -  0.7866140335
EUR  -  0.8787346221
USD  -  1.0
EUR  -  0.8787346221
CAD  -  1.3086994728
HKD  -  7.8089630931
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USD  -  1.0
EUR  -  0.8916629514
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EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
GBP  -  0.7878295255
EUR  -  0.8855042947
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8781173165
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USD  -  1.0
SEK  -  9.2823374341
EUR  -  0.8787346221
USD  -  1.0
CAD  -  1.3086994728
EUR  -  0.8787346221
USD  -  1.0
HKD  -  7.8230694037
GBP  -  0.7865259455
USD  -  1.0
USD  -  1.0
CAD  -  1.3100150536
GBP  -  0.7878295255
GBP  -  0.7842886161
GBP  -  0.7878295255
HKD  -  7.7972195165
EUR  -  0.8916629514
USD  -  1.0
CAD  -  1.3086994728
GBP  -  0.7878295255
DKK  -  6.595248609
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SEK  -  9.479709104
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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CHF  -  0.9781002639
SGD  -  1.3684683067
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USD  -  1.0
JPY  -  108.2657155595
USD  -  1.0
USD  -  1.0
CAD  -  1.3098951449
USD  -  1.0
USD  -  1.0
CAD  -  1.3180104148
DKK  -  6.5647317502
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EUR  -  0.890154887
GBP  -  0.7865259455
USD  -  1.0
CAD  -  1.3155254357
GBP  -  0.8047495062
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3191940615
USD  -  1.0
CAD  -  1.3129287599
USD  -  1.0
USD  -  1.0
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USD  -  1.0
NZD  -  1.4948109059
USD  -  1.0
USD  -  1.0
SEK  -  9.2823374341
GBP  -  0.7865259455
EUR  -  0.8787346221
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AUD  -  1.4292875989
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USD  -  1.0
GBP  -  0.7865259455
USD  -  1.0
USD  -  1.0
CAD  -  1.3180104148
USD  -  1.0
EUR  -  0.8795074758
CAD  -  1.3129287599
USD  -  1.0
USD  -  1.0
GBP  -  0.8047495062
EUR  -  0.8795074758
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SEK  -  9.2777484609
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8795074758
USD  -  1.0
USD  -  1.0
EUR  -  0.8880994671
USD  -  1.0
EUR  -  0.8848774445
EUR  -  0.8795074758
USD  -  1.0
EUR  -  0.8880994671
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.897827258
USD  -  1.0
USD  -  1.0
EUR  -  0.888651915
USD  -  1.0
GBP  -  0.7914609327
USD  -  1.0
CAD  -  1.3098951449
USD  -  1.0
USD  -  1.0
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GBP  -  0.7865259455
USD  -  1.0
GBP  -  0.8047495062
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7865259455
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.897827258
USD  -  1.0
GBP  -  0.7865259455
GBP  -  0.7878295255
USD  -  1.0
NOK  -  8.517414248
USD  -  1.0
USD  -  1.0
GBP  -  0.7865259455
USD  -  1.0
SEK  -  9.4797044686
CAD  -  1.3422722803
USD  -  1.0
EUR  -  0.8795074758
GBP  -  0.7865259455
GBP  -  0.8047495062
USD  -  1.0
EUR  -  0.8848774445
GBP  -  0.7865259455
USD  -  1.0
GBP  -  0.7857832806
EUR  -  0.8870753127
DKK  -  6.5647317502
SEK  -  9.2777484609
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4458415664
MXN  -  19.1227420918
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.3538258575
```

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AUD  -  1.4175129164
USD  -  1.0
USD  -  1.0
EUR  -  0.8801267383
USD  -  1.0
GBP  -  0.796651865
USD  -  1.0
GBP  -  0.7886199613
GBP  -  0.7878295255
AUD  -  1.4297294916
GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
GBP  -  0.7886199613
USD  -  1.0
GBP  -  0.7886199613
USD  -  1.0
USD  -  1.0
GBP  -  0.7886199613
GBP  -  0.7886199613
USD  -  1.0
EUR  -  0.8801267383
USD  -  1.0
EUR  -  0.8801267383
USD  -  1.0
USD  -  1.0
GBP  -  0.7886199613
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USD  -  1.0
GBP  -  0.7908832668
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USD  -  1.0
USD  -  1.0
EUR  -  0.8795074758
EUR  -  0.897827258
USD  -  1.0
GBP  -  0.8047495062
EUR  -  0.897827258
GBP  -  0.8047495062
MXN  -  19.1529752501
EUR  -  0.8801267383
AUD  -  1.4314576872
SGD  -  1.3547186531
AUD  -  1.4438857964
EUR  -  0.897827258
GBP  -  0.7886199613
AUD  -  1.4438857964
```

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USD  -  1.0
SGD  -  1.3542510121
USD  -  1.0
CAD  -  1.3180104148
USD  -  1.0
AUD  -  1.4325822919
HKD  -  7.8088364725
USD  -  1.0
NZD  -  1.5119016016
HKD  -  7.8088364725
USD  -  1.0
MXN  -  19.0220915731
GBP  -  0.7857832806
CAD  -  1.3172637864
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
CHF  -  0.9886639676
USD  -  1.0
USD  -  1.0
GBP  -  0.7878295255
MXN  -  19.2344573235
USD  -  1.0
CAD  -  1.3172637864
USD  -  1.0
EUR  -  0.8781173165
USD  -  1.0
USD  -  1.0
EUR  -  0.8996851102
EUR  -  0.8996851102
EUR  -  0.8781173165
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4343679712
USD  -  1.0
USD  -  1.0
CAD  -  1.313016158
USD  -  1.0
USD  -  1.0
DKK  -  6.6290279627
USD  -  1.0
EUR  -  0.8776549061
CAD  -  1.313016158
USD  -  1.0
USD  -  1.0
CAD  -  1.3191153239
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GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
CAD  -  1.3055728934
CAD  -  1.3172637864
USD  -  1.0
USD  -  1.0
SGD  -  1.3541337546
CAD  -  1.3331557923
USD  -  1.0
USD  -  1.0
GBP  -  0.7843163068
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7843163068
CAD  -  1.3399609444
USD  -  1.0
EUR  -  0.8844078889
USD  -  1.0
USD  -  1.0
HKD  -  7.8111286642
USD  -  1.0
USD  -  1.0
EUR  -  0.8976660682
EUR  -  0.8787346221
EUR  -  0.8776549061
USD  -  1.0
EUR  -  0.8776549061
USD  -  1.0
JPY  -  108.0879712747
USD  -  1.0
JPY  -  107.2933122696
EUR  -  0.8781173165
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.3640933573
EUR  -  0.8976660682
USD  -  1.0
CAD  -  1.3276701177
USD  -  1.0
GBP  -  0.7897354216
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USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8795074758
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.8022113241
USD   -   1.0
CAD   -   1.3554838131
MXN   -   19.0710641726
GBP   -   0.7902527395
AUD   -   1.448038176
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8837044892
DKK   -   6.5974726052
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7902527395
USD   -   1.0
USD   -   1.0
MXN   -   18.9550601872
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EUR   -   0.8837044892
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7902527395
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8787346221
USD   -   1.0
GBP   -   0.7869699647
SGD   -   1.3667169343
GBP   -   0.7991529202
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7902527395
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USD  -   1.0
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USD  -   1.0
USD  -   1.0
EUR  -   0.8950147677
EUR  -   0.8837044892
SGD  -   1.3575468363
USD  -   1.0
EUR  -   0.8877052818
GBP  -   0.7991686779
NOK  -   8.5844850646
EUR  -   0.8837044892
USD  -   1.0
GBP  -   0.7984589346
USD  -   1.0
MXN  -   19.1529752501
USD  -   1.0
EUR  -   0.8837044892
USD  -   1.0
USD  -   1.0
USD  -   1.0
NZD  -   1.5304926764
USD  -   1.0
USD  -   1.0
USD  -   1.0
NZD  -   1.5058403923
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
CAD  -   1.3191940615
USD  -   1.0
USD  -   1.0
EUR  -   0.8916629514
USD  -   1.0
USD  -   1.0
EUR  -   0.8844078889
AUD  -   1.4470723713
USD  -   1.0
USD  -   1.0
USD  -   1.0
CHF  -   0.9815305762
USD  -   1.0
USD  -   1.0
USD  -   1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
GBP  -  0.8022113241
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CHF  -  0.9781002639
USD  -  1.0
GBP  -  0.7902527395
USD  -  1.0
GBP  -  0.7865259455
USD  -  1.0
EUR  -  0.888651915
USD  -  1.0
USD  -  1.0
EUR  -  0.8795074758
EUR  -  0.8877052818
SEK  -  9.4442964936
GBP  -  0.8022113241
EUR  -  0.8837044892
GBP  -  0.7908832668
EUR  -  0.8837044892
USD  -  1.0
AUD  -  1.4188140883
USD  -  1.0
EUR  -  0.890154887
USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
CHF  -  0.9815305762
HKD  -  7.8140685755
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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AUD  -  1.448038176
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EUR  -  0.888651915
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7905366112
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CAD  -  1.3191940615
USD  -  1.0
EUR  -  0.8837044892
GBP  -  0.7897354216
USD  -  1.0
USD  -  1.0
SEK  -  9.4442964936
USD  -  1.0
USD  -  1.0
GBP  -  0.7860642642
GBP  -  0.7943249755
USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
GBP  -  0.7902527395
EUR  -  0.8907892393
EUR  -  0.8831581736
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EUR  -  0.8837044892
USD  -  1.0
USD  -  1.0
GBP  -  0.7984589346
GBP  -  0.7902527395
USD  -  1.0
USD  -  1.0
SGD  -  1.3575468363
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USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
EUR  -  0.8907892393
GBP  -  0.7984589346
GBP  -  0.7842886161
EUR  -  0.8876264868
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
EUR  -  0.8837044892
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GBP  -  0.7984589346
GBP  -  0.7860642642
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8795074758
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USD  -  1.0
EUR  -  0.8837044892
USD  -  1.0
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USD  -  1.0
USD  -  1.0
GBP  -  0.7873412099
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GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
GBP  -  0.7905366112
EUR  -  0.8787346221
USD  -  1.0
GBP  -  0.7943249755
GBP  -  0.7878295255
CHF  -  0.9815305762
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JPY  -  107.7231427044
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USD  -  1.0
USD  -  1.0
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HKD  -  7.8051843934
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GBP  -  0.7902527395
USD  -  1.0
USD  -  1.0
SGD  -  1.3636605716
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USD  -  1.0
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JPY  -  107.6412841603
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CAD  -  1.3191940615
AUD  -  1.4436189971
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.0220915731
AUD  -  1.4436189971
MXN  -  19.0220915731
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
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EUR  -  0.8831581736
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8876264868
USD  -  1.0
GBP  -  0.7984589346
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8844078889
CAD  -  1.3165295834
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.7972195165
USD  -  1.0
USD  -  1.0
CAD  -  1.3165295834
USD  -  1.0
GBP  -  0.7922932499
USD  -  1.0
USD  -  1.0
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SGD  -  1.3609625668
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USD   -   1.0
USD   -   1.0
EUR   -   0.8844078889
USD   -   1.0
GBP   -   0.7908832668
EUR   -   0.8787346221
USD   -   1.0
USD   -   1.0
CAD   -   1.3554838131
USD   -   1.0
USD   -   1.0
EUR   -   0.8833922261
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USD   -   1.0
USD   -   1.0
CAD   -   1.3331557923
GBP   -   0.7860642642
EUR   -   0.8844078889
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8844078889
USD   -   1.0
AUD   -   1.4436189971
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7884938534
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
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CAD   -   1.3252650177
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3065719361
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USD  -  1.0
USD  -  1.0
CAD  -  1.3165295834
USD  -  1.0
GBP  -  0.7878295255
GBP  -  0.7884938534
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NOK  -  8.5638695885
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USD  -  1.0
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USD  -  1.0
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AUD  -  1.4436189971
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USD  -  1.0
USD  -  1.0
GBP  -  0.7897354216
EUR  -  0.8981498114
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GBP  -  0.7860642642
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USD  -  1.0
USD  -  1.0
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GBP  -  0.7866140335
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GBP  -  0.7953815801
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EUR  -  0.8922994557
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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CAD  -  1.3413743991
USD  -  1.0
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MXN  -  19.0613290916
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USD  -  1.0
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USD  -  1.0
GBP  -  0.7991686779
USD  -  1.0
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EUR  -  0.890154887
AUD  -  1.4309073136
EUR  -  0.890154887
AUD  -  1.4558483176
GBP  -  0.7940893716
MXN  -  19.6324993274
USD  -  1.0
SEK  -  9.3774409273
USD  -  1.0
USD  -  1.0
CAD  -  1.3413743991
CHF  -  0.9893000446
HKD  -  7.8239493174
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.82689747
JPY  -  108.2112738571
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8910273545
CAD  -  1.3155254357
USD  -  1.0
GBP  -  0.7878295255
GBP  -  0.7940893716
USD  -  1.0
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USD  -  1.0
USD  -  1.0
CHF  -  0.9952063915
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8876264868
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.8042412902
USD  -  1.0
SEK  -  9.4442964936
USD  -  1.0
CAD  -  1.3331557923
CAD  -  1.3047313553
USD  -  1.0
USD  -  1.0
GBP  -  0.7908832668
USD  -  1.0
CAD  -  1.33846567
USD  -  1.0
CAD  -  1.3165295834
EUR  -  0.8873901855
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3554838131
EUR  -  0.8967805578
GBP  -  0.7908832668
USD  -  1.0
USD  -  1.0
SEK  -  9.394485684
EUR  -  0.8910273545
EUR  -  0.8833922261
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8910273545
CAD  -  1.3360241284
SGD  -  1.3573910719
USD  -  1.0
SEK  -  9.2823374341
USD  -  1.0
CAD  -  1.3331557923
USD  -  1.0
GBP  -  0.7908832668
EUR  -  0.8877052818
EUR  -  0.8877052818
SEK  -  9.4442964936
USD  -  1.0
EUR  -  0.8967805578
GBP  -  0.7902527395
EUR  -  0.8877052818
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GBP  -  0.7908832668
GBP  -  0.7908832668
EUR  -  0.8880994671
USD  -  1.0
CAD  -  1.3252650177
CHF  -  0.9952063915
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
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EUR  -  0.8877052818
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EUR  -  0.8981498114
EUR  -  0.8787346221
MXN  -  19.1809143364
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USD  -  1.0
USD  -  1.0
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CAD  -  1.3331557923
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3331557923
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.7908832668
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USD  -  1.0
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USD  -  1.0
CAD  -  1.3331557923
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8877052818
HKD  -  7.8406710456
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USD  -  1.0
EUR  -  0.8861320337
GBP  -  0.7878295255
USD  -  1.0
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HKD  -  7.82689747
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USD  -  1.0
EUR  -  0.8873901855
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USD  -  1.0
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USD  -  1.0
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USD  -  1.0
EUR  -  0.888651915
USD  -  1.0
USD  -  1.0
CAD  -  1.3413743991
USD  -  1.0
USD  -  1.0
EUR  -  0.8833922261
CAD  -  1.3375568841
USD  -  1.0
MXN  -  19.1529752501
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
CAD  -  1.3498293515
GBP  -  0.7908832668
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USD  -  1.0
USD  -  1.0
GBP  -  0.7908832668
USD  -  1.0
GBP  -  0.7908832668
CAD  -  1.3375568841
USD  -  1.0
EUR  -  0.8787346221
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USD  -  1.0
USD  -  1.0
EUR  -  0.8877052818
USD  -  1.0
USD  -  1.0
GBP  -  0.7908832668
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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SEK  -  9.4442964936
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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GBP  -  0.7842886161
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GBP  -  0.789608649
USD  -  1.0
GBP  -  0.7908832668
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
CHF  -  0.9952063915
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USD  -  1.0
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HKD  -  7.8391141942
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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CHF  -  0.992736292
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EUR  -  0.8938946992
GBP  -  0.7905366112
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EUR  -  0.888651915
EUR  -  0.885818053
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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MXN  -  19.1740773286
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USD  -  1.0
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EUR  -  0.8940545373
USD  -  1.0
GBP  -  0.7892031306
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GBP  -  0.7879174418
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EUR  -  0.885818053
USD  -  1.0
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CAD  -  1.3305872974
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
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USD  -  1.0
USD  -  1.0
CAD  -  1.3305872974
CAD  -  1.3305872974
USD  -  1.0
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USD  -  1.0
USD  -  1.0
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EUR  -  0.885818053
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USD  -  1.0
USD  -  1.0
GBP  -  0.7879174418
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8837044892
USD  -  1.0
USD  -  1.0
GBP  -  0.7908832668
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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EUR  -  0.888651915
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EUR  -  0.885818053
USD  -  1.0
CAD  -  1.3305872974
GBP  -  0.7878295255
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SEK  -  9.4503735326
GBP  -  0.7908832668
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GBP  -  0.7879174418
EUR  -  0.885818053
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JPY  -  108.6452526325
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USD  -  1.0
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AUD  -  1.4458415664
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USD  -  1.0
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USD  -  1.0
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GBP  -  0.7979027815
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GBP  -  0.7842886161
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USD  -  1.0
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USD  -  1.0
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EUR  -  0.8831581736
USD  -  1.0
EUR  -  0.888651915
USD  -  1.0
USD  -  1.0
GBP  -  0.7979027815
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USD  -  1.0
SEK  -  9.4930710773
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3554838131
GBP  -  0.7866140335
EUR  -  0.8776549061
USD  -  1.0
CAD  -  1.3299478937
USD  -  1.0
CAD  -  1.3299478937
GBP  -  0.7979027815
EUR  -  0.8831581736
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GBP  -  0.7842886161
GBP  -  0.7842886161
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EUR  -  0.8870753127
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EUR  -  0.8861320337
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USD  -  1.0
USD  -  1.0
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EUR  -  0.8870753127
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CAD  -  1.3098951449
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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AUD  -  1.4346669032
USD  -  1.0
USD  -  1.0
CAD  -  1.3331557923
USD  -  1.0
GBP  -  0.7894699204
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.7866140335
CHF  -  0.9910627378
HKD  -  7.8163084815
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
CAD  -  1.3360241284
USD  -  1.0
USD  -  1.0
EUR  -  0.8940545373
USD  -  1.0
USD  -  1.0
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USD  -  1.0
CAD  -  1.3360241284
USD  -  1.0
EUR  -  0.8942144326
USD  -  1.0
USD  -  1.0
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EUR  -  0.8924587238
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GBP  -  0.7866140335
USD  -  1.0
GBP  -  0.7866140335
USD  -  1.0
USD  -  1.0
EUR  -  0.8870753127
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7866140335
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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GBP  -  0.7866140335
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EUR  -  0.8870753127
USD  -  1.0
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EUR  -   0.8924587238
EUR  -   0.8922994557
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USD  -   1.0
USD  -   1.0
USD  -   1.0
AUD  -   1.4346669032
USD  -   1.0
USD  -   1.0
USD  -   1.0
MXN  -   18.9550601872
USD  -   1.0
CAD  -   1.3455796907
AUD  -   1.4260213144
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
USD  -   1.0
GBP  -   0.7908300466
AUD  -   1.4346669032
USD  -   1.0
EUR  -   0.8870753127
USD  -   1.0
GBP  -   0.7878295255
GBP  -   0.7878295255
USD  -   1.0
USD  -   1.0
GBP  -   0.7866140335
USD  -   1.0
USD  -   1.0
CAD  -   1.3360241284
CAD  -   1.3360241284
USD  -   1.0
EUR  -   0.8870753127
GBP  -   0.7866140335
GBP  -   0.7879174418
USD  -   1.0
USD  -   1.0
GBP  -   0.7866140335
USD  -   1.0
GBP  -   0.7991529202
GBP  -   0.7866140335
GBP  -   0.7991529202
NZD  -   1.5094473521
USD  -   1.0
USD  -   1.0
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CAD  -  1.3409192725
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8870753127
NZD  -  1.5253623188
AUD  -  1.4346669032
GBP  -  0.7866140335
USD  -  1.0
CAD  -  1.3498293515
USD  -  1.0
GBP  -  0.7840583602
USD  -  1.0
GBP  -  0.7902527395
GBP  -  0.7919705407
USD  -  1.0
USD  -  1.0
CAD  -  1.3375568841
USD  -  1.0
EUR  -  0.8848774445
USD  -  1.0
SGD  -  1.359518502
GBP  -  0.7866140335
GBP  -  0.7902527395
EUR  -  0.8870753127
EUR  -  0.8870753127
EUR  -  0.8870753127
GBP  -  0.7866140335
EUR  -  0.8870753127
USD  -  1.0
CAD  -  1.3191940615
AUD  -  1.4318323674
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4346669032
USD  -  1.0
EUR  -  0.8870753127
USD  -  1.0
USD  -  1.0
GBP  -  0.7865259455
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USD   -   1.0
USD   -   1.0
GBP   -   0.796651865
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8951750067
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8883361464
USD   -   1.0
GBP   -   0.796651865
USD   -   1.0
EUR   -   0.8880994671
USD   -   1.0
GBP   -   0.796651865
HKD   -   7.8221319438
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8870753127
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7866140335
USD   -   1.0
USD   -   1.0
USD   -   1.0
HKD   -   7.8413909341
EUR   -   0.8870753127
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7940893716
USD   -   1.0
USD   -   1.0
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USD  -  1.0
GBP  -  0.7940893716
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USD  -  1.0
GBP  -  0.7902604959
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EUR  -  0.8870753127
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HKD  -  7.8140685755
USD  -  1.0
USD  -  1.0
CAD  -  1.3191940615
GBP  -  0.7940893716
EUR  -  0.8870753127
GBP  -  0.7866140335
GBP  -  0.7860642642
USD  -  1.0
GBP  -  0.7860642642
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
USD  -  1.0
EUR  -  0.8870753127
USD  -  1.0
USD  -  1.0
EUR  -  0.8880994671
CAD  -  1.3065719361
USD  -  1.0
USD  -  1.0
EUR  -  0.8870753127
USD  -  1.0
USD  -  1.0
EUR  -  0.8870753127
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.7378692451
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3399609444
USD  -  1.0
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USD  -  1.0
HKD  -  7.8495654511
USD  -  1.0
USD  -  1.0
EUR  -  0.8876264868
EUR  -  0.8954956568
USD  -  1.0
CAD  -  1.3360241284
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7866140335
USD  -  1.0
EUR  -  0.8876264868
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3503944066
USD  -  1.0
GBP  -  0.7860642642
USD  -  1.0
EUR  -  0.8934953538
GBP  -  0.796651865
USD  -  1.0
GBP  -  0.7869699647
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
EUR  -  0.8870753127
GBP  -  0.7894699204
GBP  -  0.789608649
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.7378692451
EUR  -  0.8876264868
EUR  -  0.8831581736
CAD  -  1.3299478937
EUR  -  0.8870753127
USD  -  1.0
EUR  -  0.8950948801
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
DKK  -  6.6246784352
GBP  -  0.7866140335
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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HKD  -  7.8483738385
EUR  -  0.8880994671
GBP  -  0.796651865
USD  -  1.0
USD  -  1.0
HKD  -  7.8413909341
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7860642642
USD  -  1.0
AUD  -  1.4260213144
USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
CAD  -  1.3399609444
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3331557923
GBP  -  0.789608649
GBP  -  0.7849655049
GBP  -  0.7860642642
USD  -  1.0
JPY  -  108.3414764147
CAD  -  1.3399609444
EUR  -  0.8876264868
SEK  -  9.4371024735
EUR  -  0.8880994671
USD  -  1.0
EUR  -  0.8876264868
GBP  -  0.789608649
EUR  -  0.8876264868
GBP  -  0.7860642642
EUR  -  0.8967805578
GBP  -  0.7892031306
EUR  -  0.8833922261
AUD  -  1.4319190485
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7897354216
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USD   -   1.0
GBP   -   0.7860642642
MXN   -   19.7733889579
USD   -   1.0
EUR   -   0.8837044892
USD   -   1.0
USD   -   1.0
AUD   -   1.4438292552
USD   -   1.0
USD   -   1.0
USD   -   1.0
MXN   -   19.1435709824
CAD   -   1.3492660222
USD   -   1.0
AUD   -   1.4438292552
USD   -   1.0
USD   -   1.0
CAD   -   1.3065719361
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
AUD   -   1.4375441696
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
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NZD   -   1.537284039
CAD   -   1.3360241284
CAD   -   1.3387225726
USD   -   1.0
USD   -   1.0
EUR   -   0.8883361464
CAD   -   1.3065719361
CAD   -   1.3387225726
EUR   -   0.8926180487
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
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USD  -  1.0
USD  -  1.0
SGD  -  1.3648396553
USD  -  1.0
GBP  -  0.7873412099
EUR  -  0.8880994671
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8954956568
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
GBP  -  0.7873412099
USD  -  1.0
CAD  -  1.3360241284
USD  -  1.0
USD  -  1.0
CAD  -  1.3165295834
USD  -  1.0
CAD  -  1.3554838131
USD  -  1.0
HKD  -  7.8489317958
USD  -  1.0
EUR  -  0.8938946992
GBP  -  0.796651865
CAD  -  1.3360241284
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
USD  -  1.0
SGD  -  1.3648396553
USD  -  1.0
EUR  -  0.8883361464
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.7873412099
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AUD  -  1.4314648663
USD  -  1.0
MXN  -  18.9939609236
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USD  -  1.0
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GBP  -  0.7873412099
USD  -  1.0
USD  -  1.0
EUR  -  0.8880994671
GBP  -  0.796651865
GBP  -  0.7873412099
AUD  -  1.4485563601
USD  -  1.0
USD  -  1.0
GBP  -  0.7873412099
EUR  -  0.8883361464
USD  -  1.0
USD  -  1.0
HKD  -  7.8429737243
AUD  -  1.4314648663
CAD  -  1.3331557923
USD  -  1.0
CHF  -  0.9916496402
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.890154887
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
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USD  -  1.0
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CAD  -  1.3360241284
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8954956568
EUR  -  0.8954956568
EUR  -  0.8934953538
SEK  -  9.4503735326
EUR  -  0.8893632159
GBP  -  0.7892031306
EUR  -  0.8893632159
EUR  -  0.8954956568
CAD  -  1.3439167556
EUR  -  0.8967805578
JPY  -  108.2112738571
GBP  -  0.7840583602
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3066087881
CAD  -  1.3098951449
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.3710556896
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GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
CAD  -  1.3424082835
USD  -  1.0
USD  -  1.0
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USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
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CAD   -   1.3492660222
USD   -   1.0
CAD   -   1.3498435405
CAD   -   1.3443308137
GBP   -   0.7922932499
USD   -   1.0
USD   -   1.0
EUR   -   0.8877052818
GBP   -   0.7922932499
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7947401045
EUR   -   0.8893632159
GBP   -   0.7860642642
EUR   -   0.8904719501
EUR   -   0.8855042947
SGD   -   1.3784799928
USD   -   1.0
USD   -   1.0
EUR   -   0.8950948801
GBP   -   0.7947401045
USD   -   1.0
HKD   -   7.8359409924
USD   -   1.0
USD   -   1.0
USD   -   1.0
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USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
HKD   -   7.8359409924
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USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
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AUD   -   1.4470451081
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8967805578
CAD   -   1.3554838131
MXN   -   19.1227420918
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3492660222
SEK   -   9.5408483544
USD   -   1.0
CAD   -   1.3554838131
USD   -   1.0
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EUR   -   0.8954956568
USD   -   1.0
EUR   -   0.8892841263
CAD   -   1.3191940615
USD   -   1.0
USD   -   1.0
USD   -   1.0
DKK   -   6.6754268347
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
GBP   -   0.7953815801
GBP   -   0.7953815801
USD   -   1.0
EUR   -   0.8977466559
USD   -   1.0
EUR   -   0.8892841263
USD   -   1.0
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CAD  -  1.3554838131
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USD  -  1.0
SEK  -  9.5408483544
GBP  -  0.7842886161
GBP  -  0.7953815801
GBP  -  0.789608649
CAD  -  1.3422722803
GBP  -  0.7842886161
EUR  -  0.8967805578
USD  -  1.0
GBP  -  0.7840583602
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
GBP  -  0.789608649
EUR  -  0.8967805578
GBP  -  0.7840583602
CAD  -  1.3455796907
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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GBP  -  0.7866140335
GBP  -  0.7914609327
DKK  -  6.6971572056
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GBP  -  0.7908300466
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USD  -  1.0
HKD  -  7.8221319438
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USD  -  1.0
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GBP  -  0.7905366112
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USD  -  1.0
USD  -  1.0
GBP  -  0.7897354216
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USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
USD  -  1.0
GBP  -  0.7860642642
EUR  -  0.8870753127
GBP  -  0.7953815801
GBP  -  0.7953815801
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EUR  -  0.8967805578
GBP  -  0.7869699647
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USD  -  1.0
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USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
GBP  -  0.7869699647
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USD  -  1.0
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USD  -  1.0
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SGD  -  1.3817218781
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GBP  -  0.7953815801
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USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
GBP  -  0.7953815801
GBP  -  0.7953815801
GBP  -  0.7953815801
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SGD  -  1.3817218781
EUR  -  0.8811349018
HKD  -  7.8499686689
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HKD  -  7.8406710456
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USD  -  1.0
SGD  -  1.3817218781
SGD  -  1.3817218781
USD  -  1.0
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USD  -  1.0
SGD  -  1.3817218781
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4470451081
CAD  -  1.3498293515
USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
USD  -  1.0
GBP  -  0.7846332945
USD  -  1.0
AUD  -  1.4470451081
EUR  -  0.8877052818
USD  -  1.0
GBP  -  0.7953815801
EUR  -  0.8967805578
EUR  -  0.8951750067
USD  -  1.0
USD  -  1.0
CAD  -  1.3554838131
EUR  -  0.8967805578
MXN  -  19.1740773286
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3554838131
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3331557923
USD  -  1.0
USD  -  1.0
EUR  -  0.895977063
USD  -  1.0
USD  -  1.0
DKK  -  6.6971572056
GBP  -  0.7908832668
USD  -  1.0
GBP  -  0.7902604959
USD  -  1.0
NZD  -  1.537284039
GBP  -  0.7953815801
```

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USD  -  1.0
DKK  -  6.7080114963
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
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USD  -  1.0
USD  -  1.0
EUR  -  0.8848774445
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902604959
USD  -  1.0
GBP  -  0.7878295255
USD  -  1.0
CAD  -  1.3554838131
USD  -  1.0
EUR  -  0.895977063
CAD  -  1.3554838131
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
CAD  -  1.3554838131
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8963786303
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
CAD  -  1.3498435405
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
CAD  -  1.3554838131
EUR  -  0.8950948801
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
CAD  -  1.3554838131
GBP  -  0.7953815801
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
USD  -  1.0
EUR  -  0.8977466559
CAD  -  1.3554838131
GBP  -  0.7878295255
GBP  -  0.7953815801
EUR  -  0.8787346221
EUR  -  0.8967805578
EUR  -  0.8848774445
GBP  -  0.7878295255
USD  -  1.0
GBP  -  0.7922932499
EUR  -  0.8877052818
EUR  -  0.8938946992
GBP  -  0.7953815801
EUR  -  0.8877052818
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
```

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GBP   -   0.7953815801
GBP   -   0.7953815801
GBP   -   0.7919705407
USD   -   1.0
JPY   -   109.6640919705
USD   -   1.0
USD   -   1.0
USD   -   1.0
HKD   -   7.8429737243
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3554838131
USD   -   1.0
USD   -   1.0
USD   -   1.0
NZD   -   1.5365438077
USD   -   1.0
USD   -   1.0
MXN   -   19.1740773286
GBP   -   0.7953815801
AUD   -   1.4274165202
NZD   -   1.5353871026
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3554838131
USD   -   1.0
USD   -   1.0
USD   -   1.0
USD   -   1.0
EUR   -   0.8787346221
USD   -   1.0
USD   -   1.0
EUR   -   0.8981498114
USD   -   1.0
USD   -   1.0
USD   -   1.0
CAD   -   1.3432434853
USD   -   1.0
USD   -   1.0
USD   -   1.0
```

```
CAD  -  1.3498293515
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7894699204
USD  -  1.0
EUR  -  0.8904719501
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7919705407
USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
EUR  -  0.8926180487
HKD  -  7.8391141942
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7953815801
GBP  -  0.7919705407
USD  -  1.0
GBP  -  0.7953815801
USD  -  1.0
NOK  -  8.7693551284
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.1388539608
HKD  -  7.8485719418
USD  -  1.0
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
SEK  -  9.5483380986
USD  -  1.0
CAD  -  1.3409192725
```

```
GBP  -  0.7866140335
USD  -  1.0
CHF  -  1.0084426082
USD  -  1.0
GBP  -  0.7922932499
USD  -  1.0
EUR  -  0.8967805578
USD  -  1.0
CAD  -  1.3498293515
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8485719418
SGD  -  1.3768660052
USD  -  1.0
USD  -  1.0
EUR  -  0.8877052818
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.3528119508
USD  -  1.0
USD  -  1.0
GBP  -  0.7919705407
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
GBP  -  0.7866140335
CAD  -  1.3503944066
EUR  -  0.8981498114
JPY  -  109.750667854
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7919705407
AUD  -  1.4485563601
USD  -  1.0
USD  -  1.0
GBP  -  0.7919705407
USD  -  1.0
CHF  -  1.0084426082
GBP  -  0.7919705407
GBP  -  0.7763569704
```

```
GBP  -  0.7878295255
USD  -  1.0
GBP  -  0.7919705407
GBP  -  0.7919705407
EUR  -  0.8831581736
MXN  -  19.2276801721
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8907892393
AUD  -  1.4446038006
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
GBP  -  0.7886199613
SEK  -  9.5408483544
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CHF  -  1.0054679096
GBP  -  0.772519152
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
GBP  -  0.772519152
```

```
USD  -  1.0
EUR  -  0.8940545373
EUR  -  0.8930166101
USD  -  1.0
EUR  -  0.8907892393
CAD  -  1.3503944066
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
GBP  -  0.789608649
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SEK  -  9.5122016626
GBP  -  0.772519152
CAD  -  1.3086994728
USD  -  1.0
USD  -  1.0
EUR  -  0.885818053
GBP  -  0.7840583602
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
CAD  -  1.3503944066
GBP  -  0.7878295255
EUR  -  0.8787346221
MXN  -  19.0472405787
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
USD  -  1.0
SEK  -  9.5968985299
USD  -  1.0
USD  -  1.0
EUR  -  0.8787346221
USD  -  1.0
USD  -  1.0
HKD  -  7.8489317958
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8963786303
```

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SEK  -  9.5968985299
GBP  -  0.7908300466
AUD  -  1.4373714797
GBP  -  0.7908300466
JPY  -  108.7525782441
CAD  -  1.3503944066
EUR  -  0.8963786303
EUR  -  0.8870753127
AUD  -  1.4440671909
USD  -  1.0
CHF  -  1.0084426082
USD  -  1.0
USD  -  1.0
GBP  -  0.768032057
GBP  -  0.789608649
USD  -  1.0
EUR  -  0.8950948801
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8877052818
USD  -  1.0
GBP  -  0.7908832668
USD  -  1.0
GBP  -  0.789608649
USD  -  1.0
GBP  -  0.7865259455
GBP  -  0.7865259455
SEK  -  9.4321292944
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8930166101
USD  -  1.0
GBP  -  0.7840583602
USD  -  1.0
EUR  -  0.8942144326
GBP  -  0.7878639043
USD  -  1.0
EUR  -  0.8981498114
GBP  -  0.7869699647
```

```
GBP  -  0.7866140335
CAD  -  1.3432434853
GBP  -  0.7953815801
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3449723165
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3455796907
EUR  -  0.8930166101
USD  -  1.0
CAD  -  1.3449723165
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8429737243
EUR  -  0.8934155276
GBP  -  0.7878639043
CAD  -  1.3554838131
EUR  -  0.8904719501
GBP  -  0.7878639043
GBP  -  0.768032057
JPY  -  108.7525782441
SEK  -  9.568494374
HKD  -  7.8429737243
USD  -  1.0
SGD  -  1.3746204679
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7840583602
NZD  -  1.5276835149
USD  -  1.0
USD  -  1.0
GBP  -  0.7886199613
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
USD  -  1.0
USD  -  1.0
CAD  -  1.3455796907
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8950948801
USD  -  1.0
USD  -  1.0
MXN  -  19.1975957257
USD  -  1.0
USD  -  1.0
GBP  -  0.7878639043
GBP  -  0.7857832806
USD  -  1.0
USD  -  1.0
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CHF  -  1.0101245408
GBP  -  0.7953815801
USD  -  1.0
GBP  -  0.7857832806
GBP  -  0.7909148038
GBP  -  0.7894699204
GBP  -  0.7894699204
GBP  -  0.768032057
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8883361464
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7894699204
CHF  -  0.9754127151
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
SGD  -  1.3532665964
```

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GBP  -  0.7878639043
CAD  -  1.3465868477
USD  -  1.0
SEK  -  9.5734334495
USD  -  1.0
EUR  -  0.8883361464
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4485563601
GBP  -  0.7857832806
GBP  -  0.7894699204
NOK  -  8.7288437556
CHF  -  0.9916496402
USD  -  1.0
EUR  -  0.8926180487
AUD  -  1.4485563601
USD  -  1.0
GBP  -  0.7894699204
HKD  -  7.8077801194
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4300089047
USD  -  1.0
USD  -  1.0
USD  -  1.0
NZD  -  1.5293644409
GBP  -  0.7922932499
USD  -  1.0
GBP  -  0.7894699204
MXN  -  19.0450522928
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.0450522928
GBP  -  0.768032057
USD  -  1.0
EUR  -  0.8938946992
GBP  -  0.7664109882
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3455796907
```

```
EUR  -  0.8938946992
CAD  -  1.3191153239
GBP  -  0.7843163068
MXN  -  19.7378692451
GBP  -  0.7894699204
EUR  -  0.8776549061
CAD  -  1.3443308137
USD  -  1.0
EUR  -  0.8981498114
USD  -  1.0
EUR  -  0.8837044892
SEK  -  9.5734334495
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3439167556
GBP  -  0.7894699204
USD  -  1.0
AUD  -  1.4440671909
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7894699204
EUR  -  0.8904719501
USD  -  1.0
USD  -  1.0
GBP  -  0.7894699204
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7694094523
GBP  -  0.7902527395
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.8870753127
EUR  -  0.8951750067
GBP  -  0.769027342
GBP  -  0.7953815801
EUR  -  0.8950948801
GBP  -  0.7894699204
USD  -  1.0
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.769027342
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MXN  -  19.1851056212
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3455796907
USD  -  1.0
GBP  -  0.768032057
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8481193603
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.0613290916
USD  -  1.0
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
GBP  -  0.7902604959
USD  -  1.0
USD  -  1.0
EUR  -  0.896458987
EUR  -  0.8938946992
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8837044892
USD  -  1.0
MXN  -  19.0450522928
MXN  -  19.1559010096
USD  -  1.0
EUR  -  0.8963786303
USD  -  1.0
EUR  -  0.8930166101
USD  -  1.0
USD  -  1.0
EUR  -  0.8837044892
USD  -  1.0
```

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DKK  -  6.6754268347
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4542598079
CAD  -  1.3455796907
GBP  -  0.7894699204
USD  -  1.0
CAD  -  1.3455796907
GBP  -  0.7685681128
EUR  -  0.8907892393
USD  -  1.0
GBP  -  0.7919705407
GBP  -  0.7894699204
USD  -  1.0
AUD  -  1.4485563601
EUR  -  0.8954956568
SEK  -  9.5408483544
SGD  -  1.3790691418
AUD  -  1.4485563601
GBP  -  0.7953815801
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902527395
CAD  -  1.3191940615
MXN  -  19.1676853574
CAD  -  1.3492660222
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8844078889
AUD  -  1.4396935685
USD  -  1.0
USD  -  1.0
MXN  -  19.7378692451
CAD  -  1.3466199838
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8977466559
USD  -  1.0
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CAD  -  1.3465868477
USD  -  1.0
GBP  -  0.7909148038
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7866140335
GBP  -  0.7909148038
USD  -  1.0
USD  -  1.0
GBP  -  0.769027342
USD  -  1.0
USD  -  1.0
SEK  -  9.394485684
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8483738385
GBP  -  0.7866140335
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8963786303
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8977466559
EUR  -  0.8977466559
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3466199838
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8977466559
USD  -  1.0
GBP  -  0.7866140335
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
CAD  -  1.3463917526
USD  -  1.0
USD  -  1.0
USD  -  1.0
CHF  -  0.9815305762
USD  -  1.0
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8977466559
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8977466559
EUR  -  0.8977466559
EUR  -  0.8907892393
USD  -  1.0
EUR  -  0.8950948801
CAD  -  1.3503944066
USD  -  1.0
USD  -  1.0
EUR  -  0.8977466559
CAD  -  1.3466199838
USD  -  1.0
CAD  -  1.3455796907
SEK  -  9.5793473402
EUR  -  0.8934953538
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7909148038
USD  -  1.0
USD  -  1.0
GBP  -  0.789608649
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
GBP  -  0.7902604959
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8938946992
USD  -  1.0
EUR  -  0.8837044892
```

```
GBP  -  0.7909148038
GBP  -  0.7953815801
USD  -  1.0
AUD  -  1.4542598079
USD  -  1.0
EUR  -  0.8870753127
EUR  -  0.8837044892
USD  -  1.0
EUR  -  0.8926977325
USD  -  1.0
USD  -  1.0
EUR  -  0.8977466559
GBP  -  0.7849655049
AUD  -  1.4354824366
USD  -  1.0
USD  -  1.0
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
EUR  -  0.8837044892
USD  -  1.0
GBP  -  0.7688357996
EUR  -  0.8977466559
USD  -  1.0
GBP  -  0.7860642642
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.0217254691
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
USD  -  1.0
EUR  -  0.8837044892
USD  -  1.0
MXN  -  19.1088027223
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7846332945
USD  -  1.0
CHF  -  1.0131789849
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902604959
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3191940615
GBP  -  0.7902527395
USD  -  1.0
USD  -  1.0
EUR  -  0.8950948801
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7902604959
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8877052818
CAD  -  1.3554838131
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
HKD  -  7.8499686689
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3492660222
USD  -  1.0
GBP  -  0.7902604959
AUD  -  1.448038176
EUR  -  0.8892841263
USD  -  1.0
JPY  -  107.4938140686
CAD  -  1.33846567
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3409192725
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7849655049
USD  -  1.0
GBP  -  0.7884938534
USD  -  1.0
GBP  -  0.7897354216
USD  -  1.0
EUR  -  0.895977063
EUR  -  0.8967805578
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7884938534
EUR  -  0.8951750067
USD  -  1.0
EUR  -  0.895977063
```

```
EUR  -  0.8951750067
EUR  -  0.896458987
MXN  -  19.6324993274
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4436189971
USD  -  1.0
CAD  -  1.3432434853
USD  -  1.0
SEK  -  9.5358258231
EUR  -  0.8954956568
EUR  -  0.8977466559
EUR  -  0.8954956568
EUR  -  0.8870753127
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3439167556
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7846332945
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8954956568
GBP  -  0.769027342
GBP  -  0.7846332945
EUR  -  0.8981498114
CAD  -  1.3455796907
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3432434853
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
```

```
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4440671909
USD  -  1.0
AUD  -  1.4535445757
USD  -  1.0
USD  -  1.0
USD  -  1.0
CAD  -  1.3492660222
USD  -  1.0
USD  -  1.0
CAD  -  1.3422722803
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
EUR  -  0.8950948801
USD  -  1.0
USD  -  1.0
CHF  -  0.9989273264
GBP  -  0.7840583602
USD  -  1.0
USD  -  1.0
GBP  -  0.7694094523
USD  -  1.0
GBP  -  0.7840583602
CAD  -  1.3492660222
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.768032057
USD  -  1.0
USD  -  1.0
EUR  -  0.8950948801
GBP  -  0.7908300466
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7991686779
EUR  -  0.8967805578
```

```
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7922932499
HKD  -  7.8481193603
EUR  -  0.8938946992
EUR  -  0.8938946992
USD  -  1.0
AUD  -  1.4614284437
USD  -  1.0
USD  -  1.0
CAD  -  1.3474621549
USD  -  1.0
JPY  -  109.750667854
CAD  -  1.3391111111
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
AUD  -  1.4558483176
USD  -  1.0
CAD  -  1.3492660222
USD  -  1.0
USD  -  1.0
EUR  -  0.8919015341
USD  -  1.0
USD  -  1.0
EUR  -  0.8950948801
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.768032057
```

```
USD  -  1.0
USD  -  1.0
GBP  -  0.769027342
USD  -  1.0
USD  -  1.0
USD  -  1.0
MXN  -  19.1088027223
USD  -  1.0
GBP  -  0.7940893716
CAD  -  1.3413743991
USD  -  1.0
GBP  -  0.7894699204
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
USD  -  1.0
GBP  -  0.7755322016
USD  -  1.0
CAD  -  1.3554838131
USD  -  1.0
GBP  -  0.7940893716
GBP  -  0.7840583602
GBP  -  0.7840583602
GBP  -  0.7953815801
USD  -  1.0
SEK  -  9.3437083148
GBP  -  0.7840583602
AUD  -  1.4535445757
EUR  -  0.8934953538
CHF  -  0.9982196902
USD  -  1.0
Process finished. Time elapsed:  6.3 min.
```

In [84]: *# read in exchange rates*
         exchange_rates = pd.read_csv('./data/exchange_rates.csv')

         # join exchange rates with kickstarter_projects
         kickstarter_clean = kickstarter_clean.merge(exchange_rates, on='project_id', how='left'

Test

In [102]: *# values were added to data frame*
          len(df_hist_rates) == len(old_projects) + len(new_projects)

Out[102]: True

```
In [85]: # we should now have features containing the current and historic fx rate, for USD, t
         kickstarter_clean[['current_fx_rate(usd)', 'hist_exchange_rate(usd)', 'currency']].sam
```

```
Out[85]:         current_fx_rate(usd)  hist_exchange_rate(usd) currency
         1839                1.000000                 1.000000      USD
         105690              1.000000                 1.000000      USD
         142325              1.000000                 1.000000      USD
         49376               1.000000                 1.000000      USD
         17506               1.000000                 1.000000      USD
         80806               1.000000                 1.000000      USD
         162778              1.000000                 1.000000      USD
         18844               1.321623                 1.315198      CAD
         46583               1.471976                 1.317170      AUD
         159686              1.000000                 1.000000      USD
```

```
In [86]: # no missing values
         kickstarter_clean[['current_fx_rate(usd)', 'hist_exchange_rate(usd)']].isnull().any()
```

```
Out[86]: current_fx_rate(usd)       False
         hist_exchange_rate(usd)    False
         dtype: bool
```

goal and *usd pledged* **are incomparable due to non-matching currencies and dubious exchange rates.**

Define

Convert the funding goal and the pledged funding into USD, based on the current exchange rates and their historic exchange rates.

Code

```
In [87]: # convert project financial goal into usd
         kickstarter_clean['goal_current_usd'] = kickstarter_clean['goal'] / kickstarter_clean
         kickstarter_clean['goal_hist_usd'] = kickstarter_clean['goal'] / kickstarter_clean['h

         # convert pledged amounts into usd
         kickstarter_clean['pledged_current_usd'] = kickstarter_clean['pledged'] / kickstarter_
         kickstarter_clean['pledged_hist_usd'] = kickstarter_clean['pledged'] / kickstarter_cl
```

Test

```
In [88]: kickstarter_clean[['currency', 'current_fx_rate(usd)', 'hist_exchange_rate(usd)','goal
```

```
Out[88]:         currency  current_fx_rate(usd)  hist_exchange_rate(usd)       goal  \
         113790       USD              1.000000                 1.000000     4500.0
         11390        USD              1.000000                 1.000000    10000.0
         182329       USD              1.000000                 1.000000     3500.0
         103135       USD              1.000000                 1.000000     1000.0
         34746        USD              1.000000                 1.000000     2500.0
         52896        MXN             19.549656                17.766592   250000.0
         144316       EUR              0.893895                 0.788706     7500.0
```

```
        118299      GBP          0.820864              0.631383      720.0
          4586      EUR          0.893895              0.884877    10000.0
         66595      USD          1.000000              1.000000     1350.0


                 goal_current_usd   usd_pledged  pledged_current_usd  pledged_hist_usd
        113790        4500.000000   4528.000000          4528.000000       4528.000000
         11390       10000.000000      2.000000             2.000000          2.000000
        182329        3500.000000   4551.000000          4551.000000       4551.000000
        103135        1000.000000     50.000000            50.000000         50.000000
         34746        2500.000000     92.000000            92.000000         92.000000
         52896       12787.948899   3393.671270          3094.683633       3405.267683
        144316        8390.250000  13434.736068         11604.275100      13151.926700
        118299         877.125122   1132.315061           877.734237       1141.145150
          4586       11187.000000  11641.742576         11635.039350      11753.605050
         66595        1350.000000   1605.000000          1605.000000       1605.000000
```

In [89]: kickstarter_clean.info()

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 184921 entries, 0 to 184920
Data columns (total 54 columns):
backers_count            184921 non-null int64
blurb                    184913 non-null object
initial_category         184921 non-null object
converted_pledged_amount 184921 non-null int64
country                  184921 non-null object
created_at               184921 non-null datetime64[ns]
creator                  184921 non-null object
currency                 184921 non-null object
currency_symbol          184921 non-null object
currency_trailing_code   184921 non-null bool
current_currency         184921 non-null object
deadline                 184921 non-null datetime64[ns]
disable_communication    184921 non-null bool
friends                     102 non-null object
fx_rate                  184921 non-null float64
goal                     184921 non-null float64
id                       184921 non-null int64
is_backing                  102 non-null object
is_starrable             184921 non-null bool
is_starred                  102 non-null object
launched_at              184921 non-null datetime64[ns]
location                 184921 non-null object
name                     184921 non-null object
permissions                 102 non-null object
photo                    184921 non-null object
pledged                  184921 non-null float64
profile                  184921 non-null object
```

```
slug                        184921 non-null object
source_url                  184921 non-null object
status                      184921 non-null object
state_changed_at            184921 non-null datetime64[ns]
static_usd_rate             184921 non-null float64
urls                        184921 non-null object
usd_pledged                 184921 non-null float64
usd_type                    184860 non-null object
subcategory                 184921 non-null object
category                    184921 non-null object
creator_id                  184921 non-null int64
creator_name                184921 non-null object
city                        184921 non-null object
state                       184868 non-null object
displ_loc                   184921 non-null object
loc_type                    184921 non-null object
image                       184921 non-null object
project_id                  184921 non-null int64
last_update_at              184921 non-null datetime64[ns]
url                         184921 non-null object
featured                    184921 non-null object
current_fx_rate(usd)        184921 non-null float64
hist_exchange_rate(usd)     184921 non-null float64
goal_current_usd            184921 non-null float64
goal_hist_usd               184921 non-null float64
pledged_current_usd         184921 non-null float64
pledged_hist_usd            184921 non-null float64
dtypes: bool(3), datetime64[ns](5), float64(11), int64(5), object(30)
memory usage: 73.9+ MB
```

Missing description (blurb) in some projects
Define

Drop projects without value in 'blurb'. Reset the index.

Code

```
In [90]: kickstarter_clean.dropna(subset=['blurb'], inplace=True)
         kickstarter_clean.reset_index(drop=True, inplace=True)
```

Test

```
In [91]: kickstarter_clean[kickstarter_clean.blurb.isna()]['blurb']
```

```
Out[91]: Series([], Name: blurb, dtype: object)
```

Erroneous data types: - country, currency, status, category and subcategory should be of type category
Define

Convert country, currency, status, category and subcategory into category.

Code

```
In [92]: # To category
         kickstarter_clean['country'] = kickstarter_clean['country'].astype('category')
         kickstarter_clean['currency'] = kickstarter_clean['currency'].astype('category')
         kickstarter_clean['status'] = kickstarter_clean['status'].astype('category')
         kickstarter_clean['category'] = kickstarter_clean['category'].astype('category')
         kickstarter_clean['subcategory'] = kickstarter_clean['subcategory'].astype('category')
```

Test

```
In [93]: kickstarter_clean.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 184913 entries, 0 to 184912
Data columns (total 54 columns):
backers_count             184913 non-null int64
blurb                     184913 non-null object
initial_category          184913 non-null object
converted_pledged_amount  184913 non-null int64
country                   184913 non-null category
created_at                184913 non-null datetime64[ns]
creator                   184913 non-null object
currency                  184913 non-null category
currency_symbol           184913 non-null object
currency_trailing_code    184913 non-null bool
current_currency          184913 non-null object
deadline                  184913 non-null datetime64[ns]
disable_communication     184913 non-null bool
friends                      102 non-null object
fx_rate                   184913 non-null float64
goal                      184913 non-null float64
id                        184913 non-null int64
is_backing                   102 non-null object
is_starrable              184913 non-null bool
is_starred                   102 non-null object
launched_at               184913 non-null datetime64[ns]
location                  184913 non-null object
name                      184913 non-null object
permissions                  102 non-null object
photo                     184913 non-null object
pledged                   184913 non-null float64
profile                   184913 non-null object
slug                      184913 non-null object
source_url                184913 non-null object
status                    184913 non-null category
state_changed_at          184913 non-null datetime64[ns]
static_usd_rate           184913 non-null float64
urls                      184913 non-null object
usd_pledged               184913 non-null float64
```

```
usd_type                184852 non-null object
subcategory             184913 non-null category
category                184913 non-null category
creator_id              184913 non-null int64
creator_name            184913 non-null object
city                    184913 non-null object
state                   184860 non-null object
displ_loc               184913 non-null object
loc_type                184913 non-null object
image                   184913 non-null object
project_id              184913 non-null int64
last_update_at          184913 non-null datetime64[ns]
url                     184913 non-null object
featured                184913 non-null object
current_fx_rate(usd)    184913 non-null float64
hist_exchange_rate(usd) 184913 non-null float64
goal_current_usd        184913 non-null float64
goal_hist_usd           184913 non-null float64
pledged_current_usd     184913 non-null float64
pledged_hist_usd        184913 non-null float64
dtypes: bool(3), category(5), datetime64[ns](5), float64(11), int64(5), object(25)
memory usage: 66.7+ MB
```

Ambiguous column names: name should refer to a project's title, *pledged* and *goal* should include currency measures.
Define
Rename the columns name into 'project_name' and goal into 'goal_real', since it refers to the real project currency.
Code

```
In [94]: kickstarter_clean.rename(index=str, columns={"name": "project_name", "goal": "goal_rea
```

Test

```
In [95]: kickstarter_clean[['project_name', 'goal_real', "pledged_real"]].sample(5)

Out[95]:                                       project_name  goal_real  \
        18966   www.DocupletionForms.com & www.Documatic.Website!     2000.0
        47963                                         UG Musiq   100000.0
        177690  Razistan ("Land of Secrets"): a new outlet on ...    12500.0
        100589          Project-Nemesis  "death in wonderland"     10000.0
        48486   Istadarium: un calendario, un racconto, un reg...     7500.0


                pledged_real
        18966            1.0
        47963            0.0
        177690       13310.0
        100589           0.0
        48486        10049.0
```

**Dubious project statuses: The project's status (ID 2191564) is successful, the difference be-
tween goal and pledged is negative though. The projects status is failed (IDs: 3434836, 2736214,
445566), in spite of a positive surplus of pledged and goal.**

Define

Remove projects with *project id* 2191564, 3434836, 2736214 and 445566 from data set. Indentify the
index of each row containing aforementioned project ids, then drop each row. Finally, reset the
row index.

Code

```
In [96]: ids = [2191564, 3434836, 2736214, 445566]
         indices = [kickstarter_clean[kickstarter_clean.project_id == id].index[0] for id in id
         kickstarter_clean.drop(indices, inplace=True)
         kickstarter_clean.reset_index(drop=True, inplace=True)
```

Test

```
In [97]: for id in ids:
             if id in kickstarter_clean.project_id: print("Test failed, "+ id + " in df." )
             else: print("ok")

ok
ok
ok
ok
```

```
In [98]: kickstarter_clean.tail(1)

Out[98]:        backers_count                                                blurb  \
        184908            110  Let's make the world's first crowd-funded book...

                                          initial_category  \
        184908  {"id":13,"name":"Journalism","slug":"journalis...

                converted_pledged_amount country          created_at  \
        184908                      3329      US  2009-04-27 04:44:17

                                               creator currency  \
        184908  {"id":1504593825,"name":"We Make a Book","slug...      USD

                currency_symbol  currency_trailing_code  ... project_id  \
        184908               $                    True  ...         73

                    last_update_at                                               url  \
        184908 2015-03-09 15:43:20  https://www.kickstarter.com/projects/nymab/new...

                    featured  current_fx_rate(usd)  hist_exchange_rate(usd)  \
        184908  full support                   1.0                      1.0
```

```
              goal_current_usd goal_hist_usd  pledged_current_usd pledged_hist_usd
184908                  3000.0         3000.0               3329.0           3329.0
```

[1 rows x 54 columns]

Irrelevant columns
Define
Select only columns needed for analysis, reset row index and store as master_df. Necessary columns are in the following order: 'project_id', 'project_name', 'url','blurb', 'category', 'subcategory', 'image', 'slug', 'created_at', 'launched_at', 'deadline', 'state_changed_at', 'last_update_at', 'status', 'creator_id', 'creator_name', 'country', 'city', 'state', 'displ_loc', 'loc_type', 'backers_count', 'featured','currency', 'goal_real','goal_current_usd', 'goal_hist_usd', 'pledged_real','pledged_current_usd', 'pledged_hist_usd', 'current_fx_rate(usd)','hist_exchange_rate(usd)'.
Code

```
In [99]: master_df = kickstarter_clean[['project_id', 'project_name', 'url','blurb', 'category
```

Test

```
In [100]: master_df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 184909 entries, 0 to 184908
Data columns (total 32 columns):
project_id             184909 non-null int64
project_name           184909 non-null object
url                    184909 non-null object
blurb                  184909 non-null object
category               184909 non-null category
subcategory            184909 non-null category
image                  184909 non-null object
slug                   184909 non-null object
created_at             184909 non-null datetime64[ns]
launched_at            184909 non-null datetime64[ns]
deadline               184909 non-null datetime64[ns]
state_changed_at       184909 non-null datetime64[ns]
last_update_at         184909 non-null datetime64[ns]
status                 184909 non-null category
creator_id             184909 non-null int64
creator_name           184909 non-null object
country                184909 non-null category
city                   184909 non-null object
state                  184856 non-null object
displ_loc              184909 non-null object
loc_type               184909 non-null object
backers_count          184909 non-null int64
featured               184909 non-null object
currency               184909 non-null category
```

```
goal_real                    184909 non-null float64
goal_current_usd             184909 non-null float64
goal_hist_usd                184909 non-null float64
pledged_real                 184909 non-null float64
pledged_current_usd          184909 non-null float64
pledged_hist_usd             184909 non-null float64
current_fx_rate(usd)         184909 non-null float64
hist_exchange_rate(usd)      184909 non-null float64
dtypes: category(5), datetime64[ns](5), float64(8), int64(3), object(11)
memory usage: 39.3+ MB
```

4.6 Store master

```
In [101]: # Store clean data frame in two CSV files to limit file size and therefore allow pus
          quarter = len(master_df) // 4
          master_1_df = master_df.iloc[:quarter]
          master_2_df = master_df.iloc[quarter:2*quarter]
          master_3_df = master_df.iloc[2*quarter:3*quarter]
          master_4_df = master_df.iloc[3*quarter:]
          master_1_df.to_csv('./data/kickstarter_master1.csv', index=False, encoding='utf-8')
          master_2_df.to_csv('./data/kickstarter_master2.csv', index=False, encoding='utf-8')
          master_3_df.to_csv('./data/kickstarter_master3.csv', index=False, encoding='utf-8')
          master_4_df.to_csv('./data/kickstarter_master4.csv', index=False, encoding='utf-8')
```

4.7 Wrangling Summary

The dataset initially consisted of 212,377 project observations. Each project contained 37 data columns. I visually and programmatically assessed the data set here in this Jupyter Notebook. Due to a lack of documentation, I took samples of the data and compared project values with the Kickstarter archive, which is accessible online without any restrictions. There was no information about project features provided by the web scraping service, nor how exactly the data was scraped or generated. Therefore, I spent quite some time to understand and interpret each feature in the data set.

The data set was quite messy. I identified 7 tidiness issues and 10 quality issues. Therefore, I took a programmatic approach to clean the data. One of the main issues were insufficiently extracted JSON strings. I extracted the most important values from each string and stored each value in separate columns.

The second major issue were about 27k duplicate projects. Web Robots warned on their website about possible duplicates, which were a consequence of the search URLs they used to find the projects on the website. Thus, I removed all duplicates from the data set.

The third major change to this data was the conversion of funding goals and the pledged funding from their original currency to USD. I used two different exchange rates for the conversion. The first exchange rate refers to the current exchange rate (August 2019) to allow a general understanding of today's value of projects. However, to assess the real value of a campaign, I suppose it is better to compare projects by their value at the time of their funding. Hence, I additionally converted goals and pledges into USD using the date of the end of the funding.

Apart from that, when collating project observation to Kickstarter's archive, I did not encounter any severe inconsistencies. However, I'd like to warn readers, that I cannot guarantee for the validity and completeness of the data and take no liability for misinterpretation due to a lack of documentation.

After the cleaning, the data set was left with 184,909 project observations with 32 features each describing a crowdfunding campaign. Due to Github's file size restrictions, the data was split and then stored into 4 csv files.