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In [1]: # Creator Name  
CREATOR_NAME = "Jingheng Wang"
```

This file is not for answering the question. It is used as a friendly viewer of the csv file, that can display the comprehensive information of a single kanji to human-read-friendly formats.

Before use, please make sure the "cleaned_link.csv" file is under the same directory with this Jupyter Notebook.

If it is in another directory, you need to change the path in the following cell.

To use:

1. Run the following two cells to initialize.
2. In the "query_kanji" cell, you could replace that kanji with any kanji that you want to query. Run that cell.
3. Run the following grid of that kanji cell will display all of the related information about that kanji in the csv file.

Note: Running the last cell will display the raw DataFrame read from csv.

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In [2]: # Modify me if the csv file is not in the same directory with this notebook  
csv_path = "cleaned_link.csv"
```

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In [3]: # Initialization
import numpy as np
import pandas as pd
import ast

_df_ = pd.read_csv(csv_path)

def get_kanji_info(kanji = '日'):
    return _df_[_df_["kanji"] == kanji]

def row_info_to_print(_slice_ = get_kanji_info('日')):
    # The index of that row
    ind = _slice_.index
    # That index in integer type
    intind = _slice_.index[0].astype(int)

    # Print the Kanji itself
    print(_slice_.loc[ind, "kanji"][intind])
    # Print the number of strokes
    print("Number of Strokes: {}".format(_slice_.loc[ind, "strokes"][intind].astype
(int)))
    # Print the readings
    if (type(_slice_.loc[ind, "on_readings"][intind]) is str):
        temp = _slice_.loc[ind, "on_readings"][intind]
        res = list(ast.literal_eval(temp))
        print("on-readings: {}".format(res))
    if (type(_slice_.loc[ind, "kun_readings"][intind]) is str):
        temp = _slice_.loc[ind, "kun_readings"][intind]
        res = list(ast.literal_eval(temp))
        print("kun-readings: {}".format(res))
    # Print the meanings
    if (type(_slice_.loc[ind, "main_meaning"][intind]) is str):
        temp = _slice_.loc[ind, "main_meaning"][intind]
        res = list(ast.literal_eval(temp))
        print("Meaning(s): {}".format(res))

    # Grade Difficulty
    if (type(_slice_.loc[ind, "grade"][intind]) is str):
        print("Teach in grade: {}".format(_slice_.loc[ind, "grade"][intind]))
    if (type(_slice_.loc[ind, "jlpt"][intind]) is str):
        print("JLPT Level: {}".format(_slice_.loc[ind, "jlpt"][intind]))

    # Parts and Radicals
    if (type(_slice_.loc[ind, "parts"][intind]) is str):
        temp = _slice_.loc[ind, "parts"][intind]
        res = list(ast.literal_eval(temp))
        print("Contains parts: {}".format(res))
    if (type(_slice_.loc[ind, "radicals"][intind]) is str):
        temp = _slice_.loc[ind, "radicals"][intind]
        res = list(ast.literal_eval(temp).keys())
        print("Contains radical: {}".format(res))

    # Additional Info: Wanikani level and Genki Lesson
    if (~np.isnan(_slice_.loc[ind, "wanikani_level"][intind])):
        print("Wanikani Level: {}".format(_slice_.loc[ind, "wanikani_level"][intind].astype(int)))
    if (~np.isnan(_slice_.loc[ind, "Genki_Level"][intind])):
        print('Teach in Book "Genki": Lesson {}'.format(_slice_.loc[ind, "Genki_Level"][intind].astype(int)))

    if (type(_slice_.loc[ind, "on_readings_compounds"][intind]) is str):
        temp = _slice_.loc[ind, "on_readings_compounds"][intind]
        res = list(ast.literal_eval(temp))
        print('On-reading compounds:')

```

```
In [4]: # Change the kanji here if you want, and run me!
query_kanji = "水"

# Here are a number of sample kanjis if you want to test but cannot type one:
# 水 (water)
# 木 (wood)
# 金 (metal)
# 二 (two)
# 米 (rice / United States)
# 闇 (dark)
```

```
In [5]: # Run me to display the information!
row_info_to_print(get_kanji_info(query_kanji))
sl = get_kanji_info(query_kanji)
```

```
水
Number of Strokes: 4
on-readings: ['スイ']
kun-readings: ['みず', 'みず-']
Meaning(s): ['water']
Teach in grade: grade 1
JLPT Level: N5
Contains parts: ['水']
Contains radical: ['水 (氵, 氷)']
Wanikani Level: 2
Teach in Book "Genki": Lesson 4
On-reading compounds:
  水 【スイ】 Wednesday, shaved ice (served with flavored syrup), water (fifth
of the five elements)
  水位 【スイイ】 water level
  用水 【ヨウスイ】 irrigation water, water for fire, city water, cistern water
  浄水 【ジョウスイ】 clean water
Kun-reading compounds:
  水 【みず】 water (esp. cool, fresh water, e.g. drinking water), fluid (esp.
in an animal tissue), liquid, flood, floodwaters, water offered to wrestlers jus
t prior to a bout, break granted to wrestlers engaged in a prolonged bout
  水揚げ 【みずあげ】 landing, unloading (e.g. a ship), catch (of fish), taking
s, sales (of a shop), defloration (e.g. of a geisha), preservation (of cut flowe
rs, in ikebana)
  飲み水 【のみみず】 drinking water, potable water
  呼び水 【よびみず】 pump-priming, rousing, stimulation
```

```
In [6]: # Raw Dataframe
        _df_
```

Out [6]:

	kanji	strokes	frequency	grade	jlpt	parts	radicals	on_readings	kun_readings	on_readings_comp
0	垂	7.0	1509.0	junior high	N1	['一', '丨', '口']	{二: 'two'}	['ア']	['つ.ぐ']	['垂 【ア】 sub (indicating a low o
1	哀	9.0	1715.0	junior high	N1	['一', '口', '衣']	{口: 'mouth, opening'}	['アイ']	['あわ.れ', 'あわ.れむ', 'かな.しい']	['哀悼 【アイ】 condolence, regret, i
2	挨拶	10.0	2258.0	junior high	NaN	['ム', '扌', '矢', '乞']	{手 (扌): 'hand'}	['アイ']	['ひら.く']	['挨拶 【アイ】 greeting, gre salute
3	愛	13.0	640.0	grade 4	N3	['一', '夕', '心', '爪']	{心 (忄, 小): 'heart'}	['アイ']	['いと.しい', 'かな.しい', 'め.でる', 'お.しむ', 'まな']	['愛 【アイ】 affection, care, attac
4	曖	17.0	NaN	junior high	NaN	['一', '夕', '心', '日', '爪']	{日: 'sun, day'}	['アイ']	['くら.い']	['曖昧 【アイマイ】 ambiguous, u
5	悪	11.0	530.0	grade 3	N4	['一', '丨', '口', '心']	{心 (忄, 小): 'heart'}	['アク', 'オ']	['わる.い', 'わ.る', 'あ.し', 'に.く.い', 'に.く.い', 'ああ, ...	['悪 【アク】 wickedness', '悪質 シツ']
6	握	12.0	1003.0	junior high	N1	['ム', '土', '戸', '扌', '至']	{手 (扌): 'hand'}	['アク']	['にぎ.る']	['握手 【アク handshake', '握力 リョク】
7	圧	5.0	718.0	grade 5	N2	['厂', '土']	{土: 'earth'}	['アツ', 'エン', 'オウ']	['お.す', 'へ.す', 'お.さ.える', 'お.さえる']	['圧 【アツ】 pre force', '圧力 【ア ク']
8	扱	6.0	1057.0	junior high	N1	['扌', '及']	{手 (扌): 'hand'}	['ソウ', 'キュウ']	['あつか.い', 'あつか.う', 'あつか.る', 'こ.く']	['扱い 【あつ treatment, service', '【あつ
9	宛	8.0	NaN	junior high	NaN	['冂', '夕', '宀']	{宀: 'roof'}	['エン']	['あ.てる', '-あ.て', '-づつ', 'あ.たか.も']	['宛然 【エンゼン】 the very thing its
10	嵐	12.0	1910.0	junior high	N1	['山', '風']	{山: 'mountain'}	['ラン']	['あらし']	['嵐気 【ランキ】 mc mist, mountain air',
11	安	6.0	144.0	grade 3	N4	['女', '宀']	{宀: 'roof'}	['アン']	['やす.い', 'やす.まる', 'やす', 'やす.らか']	['安価 【アンカ】 priced, cheap, inexpe
12	案	10.0	206.0	grade 4	N1	['女', '宀', '木']	{木: 'tree'}	['アン']	['つくえ']	['案 【アン】 idee proposal, suggest
13	暗	13.0	1040.0	grade 3	N3	['日', '立', '音']	{日: 'sun, day'}	['アン']	['くら.い', 'くら.む', 'く.れる']	['暗黒 【アン darkness', '暗雲 【ン】 dar
14	以	5.0	126.0	grade 4	N4	['丨', '人', '人']	{人 (亻): 'man, human'}	['イ']	['もっ.て']	['以降 【イコウ】 after, as from, here.
15	衣	6.0	1214.0	grade	N2	['一', '丨']	{衣 (衤):	['イ', 'エ']	['ころも', 'きぬ	['衣 【キヌ】 cl garment dress' '衣

In []: