Python_Module12

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[1]:
```
#Import libraries
import pandas as pd
import numpy as np
import datetime
from dateutil.relativedelta import relativedelta
import pytz
```

1 Exercise 2: Birthday caluclations

[2]:
```
#Create a date object for my birthday.
birthday = datetime.date(1999, 4, 21)
#This is stupid, we need to use an existing datetime object to get today's date?
 ↪???? There should be an independent method.
today = birthday.today()
print(birthday)
print(today)

#a. Create our next birthday with replace()
nextBirthday = birthday.replace(year=2021)
print(nextBirthday)

#b. Number of days until my next birthday
timeToBday = nextBirthday - today
print("Days till next birthday: ", timeToBday.days)

#c. Number of months and days until my next birthday
relativeDiff = relativedelta(nextBirthday, today)
print(relativeDiff.months, " months ", relativeDiff.days, " days")

#d. Date of my 64th birthday
imOld = birthday + relativedelta(years=64)
print(imOld)

#e. Number of years, months, and days until im old
timeTillOld = relativedelta(imOld, today)
```

```
print(timeTillOld.years, " years ", timeTillOld.months, " months ", timeTillOld.
 ↪days, " days until I am old.")
```

```
1999-04-21
2020-10-11
2021-04-21
Days till next birthday:  192
6  months  10  days
2063-04-21
42  years  6  months  10  days until I am old.
```

2 Exercise 3 - AZ to New Zealand Timezone converison

[3]:
```
#Create timezone parameters
timezoneAZ = pytz.timezone('US/Arizona')
timezoneNZ = pytz.timezone('Pacific/Auckland')

#Create the datetime object for the meeting.
meetingAZ = datetime.datetime(2015, 5, 8, 15, tzinfo=timezoneAZ)
meetingNZ = meetingAZ.astimezone(timezoneNZ)
print(meetingAZ)
print(meetingNZ)
```

```
2015-05-08 15:00:00-07:28
2015-05-09 10:28:00+12:00
```

3 Exercise 4 - Weather Station Plot Of Max Temperature

[4]:
```
weatherDf = pd.read_csv("Pulliam_Airport_Weather_Station.csv")

#Select just the weather and tmax columns.
weatherDf = weatherDf[["DATE", "TMAX"]]
weatherDf.set_index('DATE')
#Convert to string and then datetime objects using .apply
weatherDf['DATE'] = weatherDf['DATE'].apply(lambda x: str(x))
weatherDf['DATE'] = weatherDf['DATE'].apply(lambda x: datetime.datetime.
 ↪strptime(x, '%Y-%m-%d'))

maxDate = weatherDf.iloc[[-1]]['DATE']
maxDate

#For some reason there is not a years parameter for the datetime I made, so I␣
 ↪had to manually enter days in five years with the leap year.
fiveYearsBefore = maxDate - datetime.timedelta(days=1826)
print(str(fiveYearsBefore))
```

```
#I tried to filter with datetime objects but I couldn't get it working properly.
 ↪
weatherDf = weatherDf.loc[str(fiveYearsBefore) : str(maxDate)]
```

```
25448   2014-09-15
Name: DATE, dtype: datetime64[ns]
```