Pandas DateTime Notes

1. Getting the Current Date and Time

Pandas provides methods to fetch the current date and time, useful for timestamping and scheduling tasks.

```python
import pandas as pd


current_year = pd.Timestamp.today().year

current_month = pd.Timestamp.today().month

current_day = pd.Timestamp.today().day

print(current_year, current_month, current_day)



current_datetime = pd.Timestamp.now()

print(current_datetime)
```

2. Converting Strings to DateTime

`pd.to_datetime()` converts string representations of dates into Pandas DateTime objects.

```python
s1 = pd.Series(['8/7/2001 6:30:22 am', '2/4/2002', None])

pd.to_datetime(s1, format='%d/%m/%Y %I:%M:%S %p', errors='ignore')



s1 = pd.Series(['8/july/01', '2/april/02'])

pd.to_datetime(s1, format='%d/%B/%y')
```

Handling Invalid Dates: If a date is invalid, `errors='coerce'` will replace it with `NaT` (Not a Time).

```python
s1 = pd.Series(['8/7/2001 6:30:22 am', 'InvalidDate', None])

pd.to_datetime(s1, errors='coerce')
```

Common Date Format Codes

Code	Meaning	Example
%Y	Year (4-digit)	2024
%y	Year (2-digit)	24
%m	Month (01-12)	03
%b	Month (Abbreviated)	Mar

Pandas DateTime Notes

%B	Month (Full)	March
%d	Day (01-31)	04
%H	Hour (00-23)	14
%I	Hour (01-12)	02
%M	Minute (00-59)	30
%S	Second (00-59)	45
%p	AM/PM	AM

3. Adding Offsets to Dates

`pd.DateOffset()` shifts dates by a specific number of years, months, days, etc.

```
date = pd.Series(['2024-03-04'])  # A single date
date = pd.to_datetime(date)
new_date = date + pd.DateOffset(years=5)
print(new_date.dt.month_name())
```

4. Generating Date Ranges

`pd.date_range()` generates sequences of dates between a start and end date, with customizable frequency.

```
pd.date_range(start='3/sep/2001', end='2/aug/2002')
pd.date_range(start='3/sep/2001', end='2/aug/2002', freq='ME')  # Month end
pd.date_range(start='3/sep/2001', end='2/aug/2022', freq='YE')  # Year end
pd.date_range(start='3/sep/2001', end='2/aug/2022', freq='2YE') # Every 2 years
pd.date_range(start='3/sep/2001', end='2/aug/2022', periods=2)  # Generates 2 equally spaced dates
```