BIS 420 PROGRAMMING FOR DATA SCIENCE

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CHAPTER 16 EXERCISE 16.7
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The datetime module provides date and time objects that are similar to the Date and Time objects in this chapter, but they provide a rich set of methods and operators. Read the documentation at http: // docs. python. org/ 2/ library/ datetime. html .

1. Use the datetime module to write a program that gets the current date and prints the day of the week.

2. Write a program that takes a birthday as input and prints the user's age and the number of days, hours, minutes and seconds until their next birthday.

3. For two people born on different days, there is a day when one is twice as old as the other. That's their Double Day. Write a program that takes two birthdays and computes their Double Day.

4. For a little more challenge, write the more general version that computes the day when one person is n times older than the other.

```
from datetime import datetime, timedelta


# Task 1
def current_day_of_week():
    today = datetime.today()
    print("Today is:", today.strftime('%A'))


# Task 2
def birthday_info(birth_str):
    birth_date = datetime.strptime(birth_str, "%Y-%m-%d")
    today = datetime.today()
```

```
    age = today.year - birth_date.year - ((today.month, today.day) < (birth_date.month,
birth_date.day))


    next_birthday = birth_date.replace(year=today.year)
    if next_birthday < today:
        next_birthday = next_birthday.replace(year=today.year + 1)
    time_until = next_birthday - today


    print(f"Age: {age}")
    print(f"Time until next birthday: {time_until.days} days, {time_until.seconds // 3600} hours,
{(time_until.seconds % 3600) // 60} minutes, {time_until.seconds % 60} seconds")


# Task 3
def double_day(birth1_str, birth2_str):
    b1 = datetime.strptime(birth1_str, "%Y-%m-%d")
    b2 = datetime.strptime(birth2_str, "%Y-%m-%d")


    if b1 > b2:
        older, younger = b2, b1
    else:
        older, younger = b1, b2


    diff = younger - older
    double_day = younger + diff
    print("Double Day is:", double_day.strftime("%Y-%m-%d"))


# Task 4
def n_times_day(birth1_str, birth2_str, n):
```

```
    b1 = datetime.strptime(birth1_str, "%Y-%m-%d")
    b2 = datetime.strptime(birth2_str, "%Y-%m-%d")

    if b1 > b2:
        older, younger = b2, b1
    else:
        older, younger = b1, b2

    diff = younger - older
    target = younger + diff / (n - 1)
    print(f"{n}-times Day is:", target.strftime("%Y-%m-%d"))

current_day_of_week()
print()

birthday_info("2000-06-15")
print()

double_day("2000-06-15", "2003-08-10")
print()

n_times_day("2000-06-15", "2003-08-10", 3)
```

```
from datetime import datetime, timedelta

# Task 1
def current_day_of_week():
    today = datetime.today()
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```
    print("Today is:", today.strftime('%A'))

# Task 2
def birthday_info(birth_str):
    birth_date = datetime.strptime(birth_str, "%Y-%m-%d")
    today = datetime.today()
    age = today.year - birth_date.year - ((today.month, today.day) <
(birth_date.month, birth_date.day))

    next_birthday = birth_date.replace(year=today.year)
    if next_birthday < today:
        next_birthday = next_birthday.replace(year=today.year + 1)
    time_until = next_birthday - today

    print(f"Age: {age}")
    print(f"Time until next birthday: {time_until.days} days, {time_until.seconds //
3600} hours, {(time_until.seconds % 3600) // 60} minutes, {time_until.seconds % 60}
seconds")

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    else:
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    diff = younger - older
    target = younger + diff / (n - 1)
    print(f"{n}-times Day is:", target.strftime("%Y-%m-%d"))
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print()

birthday_info("2000-06-15")
print()

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```