Data Sampling Challenge

To solve this challenge, you do not need any user interface, database or special infrastructure. Clean code and meaningful tests are important for us. Please use Python to implement the solution.

Imagine, you are part of a software team and got the challenge to write a program that is able to sample time-based measurement data received from a medical device. The measurement data have the following structure:

```python
from dataclasses import dataclass
from datetime import datetime, timedelta
from enum import Enum

class MeasType(Enum):
    SPO2 = 1
    HR = 2
    TEMP = 3

@dataclass
class Measurement:
    measurementTime: datetime = datetime.min
    measurementType: MeasType = MeasType.SPO2
    value: float = 0.0
```

Possible types of measurements are for example temperature, heart rate or SpO2. Measurements are measured exact to the second.

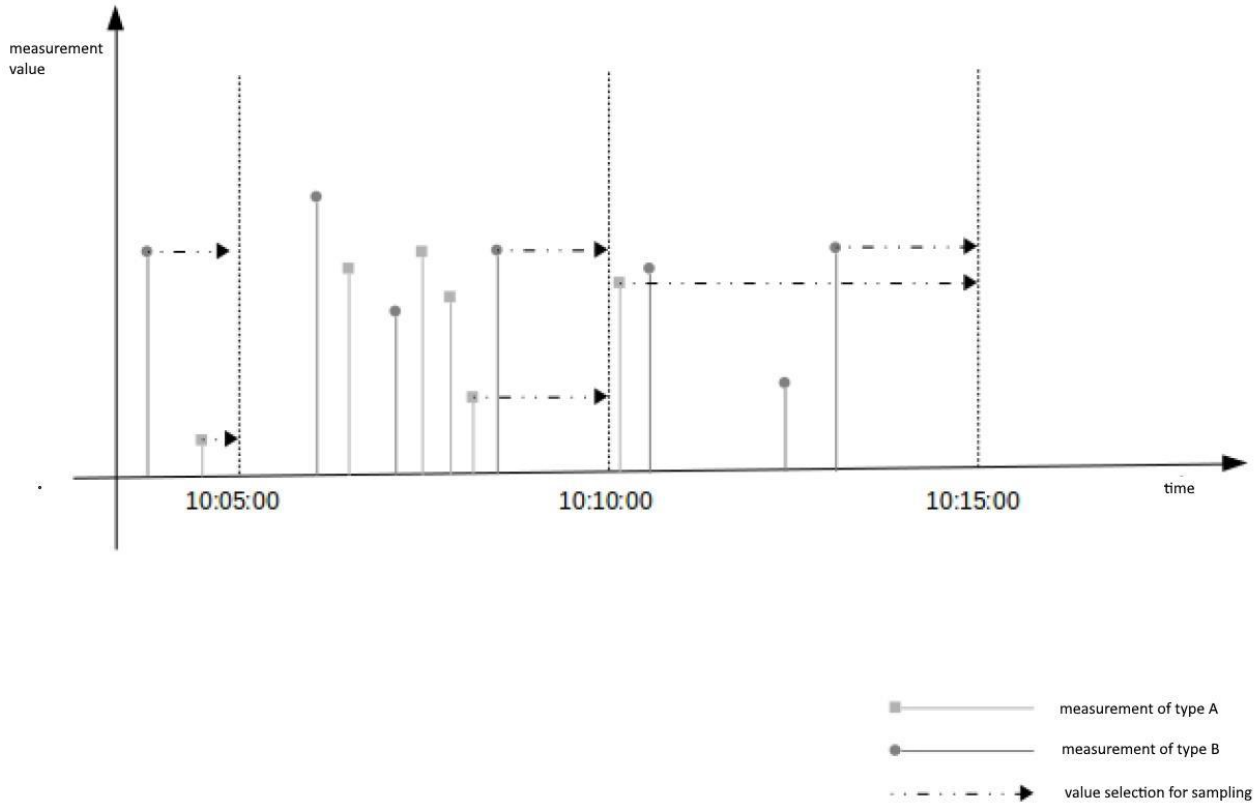
Your challenge is to sample the received measurements into 5-minute interval based on the following rules:

- Each type of measurement shall be sampled separately
- From a 5-minute interval only the last measurement shall be taken
- If a measurement timestamp will exactly match a 5-minute interval border, it shall be used for the current interval
- The input values are not sorted by time
- The output shall be sorted by time ascending.

Example:

INPUT:
{2017-01-03T10:04:45, TEMP, 35.79}
{2017-01-03T10:01:18, SPO2, 98.78}
{2017-01-03T10:09:07, TEMP, 35.01}
{2017-01-03T10:03:34, SPO2, 96.49}
{2017-01-03T10:02:01, TEMP, 35.82}
{2017-01-03T10:05:00, SPO2, 97.17}
{2017-01-03T10:05:01, SPO2, 95.08}

OUTPUT:
{2017-01-03T10:05:00, TEMP, 35.79}
{2017-01-03T10:10:00, TEMP, 35.01}
{2017-01-03T10:05:00, SPO2, 97.17}
{2017-01-03T10:10:00, SPO2, 95.08}



A team member already suggested a possible signature to start with:

```
def sampleMeasurements(startOfSampling: datetime,
    unsampledMeasurements: list[Measurement]) -> dict[MeasType, list[Measurement]]:
    # your implementation here
    return {MeasType.SPO2: [Measurement(datetime.min,MeasType.SPO2,0.0)]}
```