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import json, unittest, datetime

with open("./data-1.json","r") as f:
    jsonData1 = json.load(f)
with open("./data-2.json","r") as f:
    jsonData2 = json.load(f)
with open("./data-result.json","r") as f:
    jsonExpectedResult = json.load(f)


def convertFromFormat1 (jsonObject):

    locationParts = jsonObject['location'].split('/')

    result = {
        'deviceID': jsonObject['deviceID'],
        'deviceType': jsonObject['deviceType'],
        'timestamp': jsonObject['timestamp'],
        'location': {
            'country': locationParts[0],
            'city': locationParts[1],
            'area': locationParts[2],
            'factory': locationParts[3],
            'section': locationParts[4]
        },
        'data': {
            'status': jsonObject['operationStatus'],
            'temperature': jsonObject['temp']
        }
    }

    return result

def convertFromFormat2 (jsonObject):

    date = datetime.datetime.strptime(
        jsonObject['timestamp'],
        '%Y-%m-%dT%H:%M:%S.%fZ'
    )
    timestamp = round(
        (date - datetime.datetime(1970, 1, 1)).total_seconds() * 1000
    )

    result = {
        'deviceID': jsonObject['device']['id'],
        'deviceType': jsonObject['device']['type'],
        'timestamp': timestamp,
        'location': {
            'country': jsonObject['country'],
            'city': jsonObject['city'],
            'area': jsonObject['area'],
            'factory': jsonObject['factory'],
            'section': jsonObject['section']
        },
        'data': jsonObject['data']
    }

    return result


def main (jsonObject):

    result = {}
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    if (jsonObject.get('device') == None):
        result = convertFromFormat1(jsonObject)
    else:
        result = convertFromFormat2(jsonObject)

    return result


class TestSolution(unittest.TestCase):

    def test_sanity(self):

        result = json.loads(json.dumps(jsonExpectedResult))
        self.assertEqual(
            result,
            jsonExpectedResult
        )

    def test_dataType1(self):

        result = main (jsonData1)
        self.assertEqual(
            result,
            jsonExpectedResult,
            'Converting from Type 1 failed'
        )

    def test_dataType2(self):

        result = main (jsonData2)
        self.assertEqual(
            result,
            jsonExpectedResult,
            'Converting from Type 2 failed'
        )

if __name__ == '__main__':
    unittest.main()
```