

Challenge: XML to RabbitMQ Publisher with Player Registrations and Achievements

Description:

Your task is to write a program that reads player data, including registrations and achievements, from an XML file, transforms it into event types, and publishes them to a header exchange on RabbitMQ. Ensure that the original XML filename is included in the published events, but not within the body of the JSON events themselves, and that the events generated are trackable. The events must be published in JSON format and should be per player.

Instructions:

1. Read the provided XML file containing player data, including registrations and achievements.
2. For each player registration in the XML file, transform their information and achievements into separate event types in JSON format.
3. Include the original XML filename as a header in each published event.
4. Publish each event to a RabbitMQ header exchange.
5. Ensure that each event is appropriately formatted as JSON and includes relevant player details and achievements.
6. The published events must be trackable, without exposing the original XML data.

Requirements:

- Use any programming language of your choice.
- Utilize the RabbitMQ client library for interacting with RabbitMQ.
- Write clean and readable code.
- Include necessary error handling.
- Complete the task within one week.

Example:

Given the following XML structure for a player registration and achievements:

```
<player_registration>
  <id>1</id>
  <name>John Doe</name>
  <age>25</age>
  <country>USA</country>
  <position>Forward</position>
  <achievements>
    <achievement year="2022">League Winner</achievement>
    <achievement year="2023">Top Scorer</achievement>
  </achievements>
</player_registration>
```

And suppose the XML file is named “players.xml”. The corresponding events published to RabbitMQ for this player should include these details in JSON

format, but without including the filename within the body of the JSON events:

Player Registration Event:

```
{
  "event_type": "player_registration",
  "player": {
    "id": "1",
    "name": "John Doe",
    "age": "25",
    "country": "USA",
    "position": "Forward"
  }
}
```

Player Achievements Event:

```
{
  "event_type": "player_achievements",
  "player_id": "1",
  "achievements": [
    {"year": "2022", "title": "League Winner"},
    {"year": "2023", "title": "Top Scorer"}
  ]
}
```

However, both events should contain the original XML filename as a header attribute when published to RabbitMQ.

Submission:

Provide the code for your solution, along with any necessary setup instructions and dependencies. Ensure completion within one week.