**Use Case: Enhancing Guest Experience at Innovator Island Theme Park**

Overview:

Innovator Island Theme Park aims to enhance guest experience and operational efficiency through the implementation of a comprehensive theme park management system leveraging serverless architecture. The system integrates various functionalities to provide real-time updates, streamline photo processing, offer multilingual support, conduct analytics, and enable event-driven notifications. This use case outlines how the proposed system enhances guest experience and optimizes park operations.

1**. Real-time Ride Updates**:

- Scenario:

- A family visiting Innovator Island Theme Park wants to plan their day efficiently by knowing the current wait times for rides.

- Solution:

- The theme park management system utilizes serverless architecture to provide real-time updates on ride wait times.

- AWS Lambda functions fetch data from DynamoDB tables containing ride information and publish updates to an SNS topic.

- The frontend application, developed as a PWA, subscribes to the SNS topic and displays live ride wait times to guests.

2**. On-ride Photo Processing**:

- Scenario:

- Guests riding attractions at the theme park desire personalized photos captured during their experiences.

- Solution:

- Upon exiting rides, guests have their photos taken, which are then processed using serverless functions.

- AWS Lambda functions conduct chromakey processing to remove backgrounds, composite images with theme park graphics, and finalize the photos.

- Processed photos are stored in Amazon S3 buckets and made available for viewing and sharing through the frontend application.

**3. Multilingual Support:**

- Scenario:

- International visitors to Innovator Island Theme Park require information in their native languages to fully enjoy their experience.

- Solution:

- The theme park management system supports multilingual capabilities using Amazon Translate.

- Resource files containing language strings are translated into multiple languages and deployed through AWS Amplify Console.

- Guests can select their preferred language within the frontend application, enabling them to access park information in their native languages.

**4. Analytics and Insights:**

- Scenario:

- Park management at Innovator Island seeks to gain insights into visitor behavior and ride popularity.

- Solution:

- The theme park management system collects data on visitor interactions, ride ratings, and entry/exit events using Amazon Kinesis.

- AWS Lambda functions process streaming data and store it in Amazon S3 for further analysis.

- QuickSight dashboards provide park management with real-time analytics and actionable insights to optimize operations and improve guest satisfaction.

**5. Event-driven Notifications:**

- Scenario:

- Maintenance staff at Innovator Island require timely notifications about ride system outages or operational issues.

- Solution:

- The theme park management system utilizes event-driven architecture to deliver notifications to maintenance staff.

- AWS EventBridge routes events from SNS topics to Lambda functions, enriching them with additional outage information.

- Notifications are sent via email or SMS, alerting maintenance staff to critical issues and enabling prompt responses to operational challenges.

**Conclusion:**

The implementation of a serverless architecture-based theme park management system at Innovator Island enhances guest experience and operational efficiency. By providing real-time updates, personalized photo experiences, multilingual support, analytics, and event-driven notifications, the system ensures a seamless and enjoyable experience for park visitors while enabling park management to optimize operations and respond effectively to operational challenges.