

OpenIELTS

Register Service

Back-End Infrastructure

Contenes



Technical Roadmap



Keywords



Features details



Code Link



1.0 Technical Roadmap



Webpage



Postman
API Trigger



AWS API
Gateway



AWS
Lambda



AWS
DynamoDB

2.0 Keywords

SaaS

Event-Driven

AWS

Marshmallow

Infrastructure
As Code(IaC)

Pytest



3.0 Features details

3.1 Webpage UI

| | |
|--|---------------------------------|
| First Name How do you want to be called? | |
| <input type="text" value="Weiheng"/> | |
| Last Name What is your family name? | |
| <input type="text" value="Yan"/> | |
| Age How old are you? | <input type="text" value="23"/> |
| <input type="range" value="23"/> | |
| Gender What is your gender? | |
| <input type="text" value="Boy"/> | |
| Countries Where are you from? | |
| <input type="text" value="Korea"/> | |
| Attempted How many IELTS test have you taken before? | |
| <input type="text" value="1"/> | |
| Catagory Which test are you preparing for? | |
| <input type="text" value="Academic Testing"/> | |
| Last Attempt Speaking mark What is the speaking score of your last test? | |
| <input type="text" value="6"/> | |
| Target Speaking mark What is the target speaking scores? | |
| <input type="text" value="7"/> | |
| Are you ready to start the journey with us? | |
| <input checked="" type="checkbox"/> Ready? | |
| <input type="button" value="Clear"/> | |
| <input type="button" value="Submit"/> | |


3.2 Postman Trigger


POST ▼ <https://h241ahfogg.execute-api.us-east-1.amazonaws.com/Prod/client>

Params Authorization Headers (8) **Body** Pre-request Script Tests Settings

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL JS

```
1 {
2   "fname": "Weiheng",
3   "lname": "Yan",
4   "age": 24,
5   "gender": "Male",
6   "country": "Hongkong",
7   "attempted": 3,
8   "catagory": "General",
9   "lastAttempted": 6.0,
10  "target": 7.0
11 }
```

Body Cookies Headers (12) Test Results  200

Pretty Raw Preview Visualize JSON ▼ 

```
1 {
2   "Operation": "Save",
3   "Message": "Success",
4   "Item": {
5     "lastAttempted": 6,
6     "lname": "Yan",
7     "userId": "WYan1999",
8     "country": "Hongkong",
9     "attempted": 3,
10    "target": 6,
11    "gender": "Male",
12    "age": 24,
13    "catagory": "General",
```

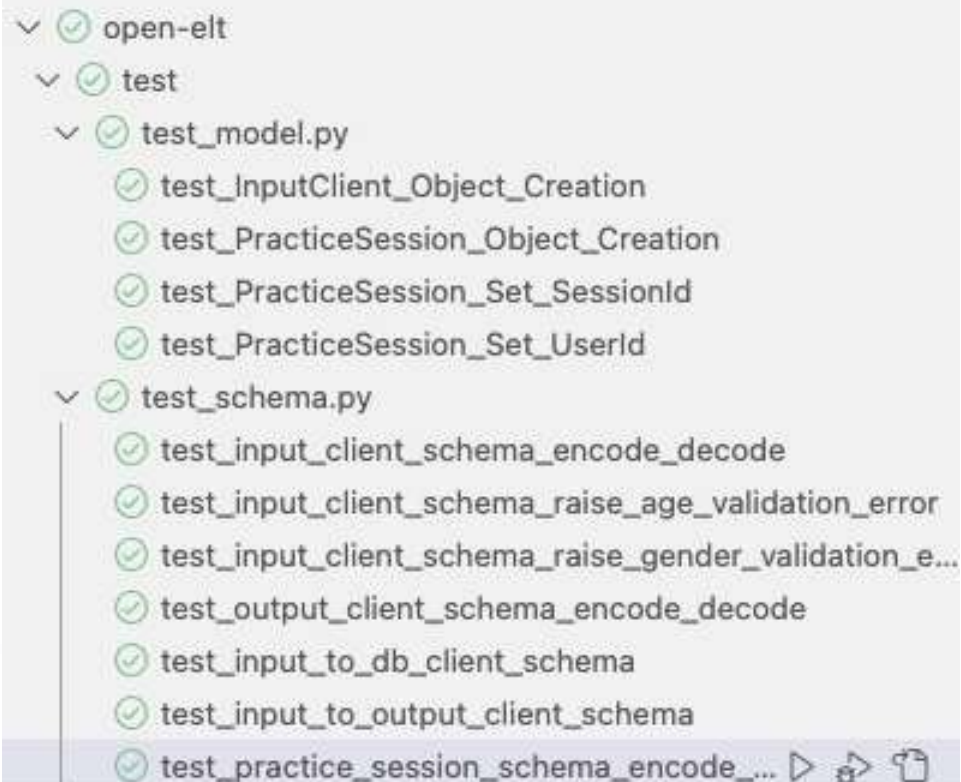
3.3 Schema Design

```
class DBClientSchema(OutputClientSchema):
    OBJ_CLS = InputClient

    modificationInfo = fields.Nested(
        ModificationInfoSchema,
        required=True,
        metadata={"description": "modification info of a client object"},
    )
    trialList = fields.List(
        fields.Nested(
            PracticeSessionSchema,
            required=True,
            metadata={"description": "list of previous attempts"},
        )
    )
)
```

```
INPUT_CLIENT_SCHEMA = InputClientSchema()
OUTPUT_CLIENT_SCHEMA = OutputClientSchema()
DB_CLIENT_SCHEMA = DBClientSchema()
PRACTICE_SESSION_SCHEMA = PracticeSessionSchema()
```


3.4 Pytest Unit Test



```
17
18 @freeze_time(SAMPLE_ISO_TIMESTAMP)
19 def test_InputClient_Object_Creation():
20     my_client = InputClient(
21         fname="Weiheng",
22         lname="Yan",
23         age=18,
24         gender="Male",
25         country="China",
26         attempted=3,
27         catagory="General",
28         lastAttempted=6.5,
29         target=7,
30     )
31     assert my_client.modificationInfo.created_by == SAMPLE_USER_ID
32     assert my_client.modificationInfo.last_modified_by == SAMPLE_USER_ID
33
```

3.5 Infrastructure As Code (IaC) with AWS CloudFormation

```
162 Outputs:
163 # ServerlessRestApi is an implicit API created out of Events key under Serverless::Function
164 # Find out more about other implicit resources you can reference within SAM
165 # https://github.com/awslabs/serverless-application-model/blob/master/docs/internals/generated\_resources.rst#api
166 PostApi:
167   Description: API Gateway endpoint URL for Prod stage for registering client info input function
168   Value: !Sub "https://${ServerlessRestApi}.execute-api.${AWS::Region}.amazonaws.com/Prod/client"
169 GetUserIdApi:
170   Description: API Gateway endpoint URL for Prod stage for getting client info function based on UserId
171   Value: !Sub "https://${ServerlessRestApi}.execute-api.${AWS::Region}.amazonaws.com/Prod/user"
172 GetSessionIdApi:
173   Description: API Gateway endpoint URL for Prod stage for getting client info function based on SessionId
174   Value: !Sub "https://${ServerlessRestApi}.execute-api.${AWS::Region}.amazonaws.com/Prod/session"
175 RegisterInput:
176   Description: Registering client info input Lambda Function ARN
177   Value: !GetAtt RegisterInput.Arn
178 RetrieveByUserId:
179   Description: Getting client info by UserId Lambda Function ARN
180   Value: !GetAtt RetrieveByUserId.Arn
181 RetrieveBySessionId:
182   Description: Getting client info by SessionId Lambda Function ARN
183   Value: !GetAtt RetrieveBySessionId.Arn
184 RegisterInputIamRole:
185   Description: Implicit IAM Role created for RegisterInput function
186   Value: !GetAtt RegisterInput.Arn
187 RetrieveByUserIdIamRole:
188   Description: Implicit IAM Role created for RetrieveByUserId function
189   Value: !GetAtt RetrieveByUserId.Arn
190 RetrieveBySessionIdIamRole:
191   Description: Implicit IAM Role created for RetrieveBySessionId function
192   Value: !GetAtt RetrieveBySessionId.Arn
```



4.0 Code Link

[**https://github.com/blotusyan/Register-Service**](https://github.com/blotusyan/Register-Service)



THANK YOU @

Shuaichen Yan