



Self-Assessment and Personalized Learning (SAPL) System

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Self-Assessment and Personalized Learning-path (SAPL) System

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Overview

Digi-Safari (DS) provides software training and services to corporate clients looking to re-skill/ Up-skill existing/ new hires under B2B (Business-Business) model. DS wants to extend the service for the B2C (Business-Consumer) segment, where individual learners can also directly register for self-paced training. To better assist learners in assessing their current skill level and pick the best-fit learning path, DS is planning to develop a Self-Assessment and Personalized Learning-path (SAPL) System. SAPL will provide on-line self-assessment tool through series of questions, which will auto-select next question based on response from previous questions equivalent to GRE type test. Based on the performance and candidate's career goal, SAPL will automatically come up with Personalized Learning-path. Candidate will then have option of enrolling through Digi-Safari training programs.

Project Team

Roles	Name	Major responsibilities	Contact (Email and/or Phone)
Project owner	Dipti Dash, Digi-Safari LLC	Guiding team development efforts towards successful product delivery.	deep@digi-safari.com
Team leader	Md Saiful Islam	Enabling team co-ordination / communication, assigning tasks to individual team members	mislam16@students.kennesaw.edu
Team members	A B M Kamrul Islam Riad	To up-skill on full stack Java and design and developing the assigned front-end, back-end services of the project	aislamri@students.kennesaw.edu
	Prathyusha Kommineni	To up-skill on full stack Java and design and developing the assigned front-end, back-end services of the project	pkommine@students.kennesaw.edu
	Alfeshkhi Hassan	To up-skill on full stack Java and design and developing the assigned front-end, back-end services of the project	halfreshk@students.kennesaw.edu
Advisor / Instructor	Madhu Samala, Dongli Wu Digi-Safari LLC	Coaching and mentoring the team to up-skill on Full Stack Java. Guiding through project planning, designing, development and deploying the application to cloud	madhu.samala@digi-safari.com dongli.wu@digi-safari.com

Project website

- <http://lms.digi-safari.com/>

Final Deliverables

1. Design and build the project back-end, including the assessment algorithm.
2. Design and build the project front-end (UI/UX), making it a mobile friendly web application
3. Deploy the beta version of SAPL to Cloud

Milestones

Weekly Milestones

#1 - By 9/11/2020

Learning & Hands-on Front-end development using HTML5, CSS3, Bootstrap, JavaScript & Angular

We are expected to learn and get hands-on developing a front-end application by working on the given assignments which cover HTML5, CSS3, JavaScript and Angular technologies. We will mostly use this time to cover our learning gaps on deferent technologies.

#2 - By 9/18/2020

Learning & Hands-on Back-end development using Spring, Spring Boot & Microservices

We are expected to learn and get hands-on developing back-end APIS (RESTful Webservices) by working on the given assignments which cover Spring, Spring Boot, and Spring Cloud Microservices

#3 - By 9/25/2020

Design thinking & architecture of the capstone project

We are expected to understand the functional requirements of the application and design the data models, front-end UI wireframes and back-end web services

#4 - By 10/02/2020

Developing Quiz Service (Back-end Webservice)

We are expected to develop Quiz Service with the following user stories:

1. A user should be able to create a quiz basis on 'Taxonomy Level, Number of Questions, Time per question and number of attempts, etc...
2. It should store the details of all the quizzes taken by end users
3. If a user has already taken a quiz and trying to re-take it should throw different questions on the same topics

#5 - By 10/09/2020

Developing Question Bank Service (Back-end Webservice)

We are expected to develop Question Bank Service with the following user stories:

1. A user should be able to add a question with its options and correct answer.
2. A user should be able to map the question to the concept along with the taxonomy level
3. A user should be able to add questions in bulk by reading from CSV or Excel file

#6 - By 10/16/2020

Implementing Authentication & Authorization

We are expected to implement Authentication & Authorization with the following user stories

1. Implement authentication service using JWT token
2. Implementing Authentication & Authorization using Zuul API Gateway
3. Securing routes in Angular using Routing Guards

#7 - By 10/23/2020

Developing Question Play Service (Back-end Webservice)

We are expected to develop Question Play Service with the following user stories:

1. A user should be able to take / attempt quiz for any particular course
2. A user should be able to see his score, preview his quiz, and the description for the wrong answer.
3. A user should be able to see his past taken quizzes and the previous attempt of the same quiz

#8 - By 10/30/2020

Developing Analytics Service (Back-end Webservice)

We are expected to develop Analytics Service with the following user stories:

1. A user should be able to see all attempted quizzes along with the scores

2. A user should be able to see how many times he has attempted that quiz
3. A user should be able to see his suggested learning paths for the quizzes attempted

#9 - By 11/06/2020

Developing UI using Angular part 1

We are expected to develop the front-end UI using Angular framework with the following objectives

1. Developing services to consume backend Quiz Service end points
2. Developing services to consume backend Question Bank Service End points
3. Developing the Front-end UI screen to replicate the functionality of quiz and quiz play services

#10 - By 11/13/2020

Developing UI using Angular part 2

We are expected to develop the front-end UI using Angular framework with the following objectives

1. Developing services to consume backend Quiz Play Service end points
2. Developing services to consume backend Analytics Service End points
3. Developing the Front-end UI screen to replicate the functionality of Quiz play and Analytics services

#11 - By 11/20/2020

Implementing Unit Testing and E2E Testing and Code Refactoring

We are expected to integrate the front-end with backend services

1. Implement unit testing and e2e testing for the whole application and automating through Gitlab CI pipelines
2. Working on the pending backend and frontend services
3. Code Review on Front end and backend services

#12 - By 11/27/2020

Integration & Deployment

We are expected to

1. integrate the front-end with backend services
2. Containerize the application using Docker
3. Finally, package and deploy the application to Kubernetes

Future milestone meetings date/time

We have a repetitive weekly meeting (3 times in a week). So, the followings are our next 10 meeting schedules. Each week we set milestones for the next week tasks and deliverables.

Weekly Meeting Time:

Monday – 12:00 PM

Wednesday – 12:00PM

Friday – 12:00PM

Communication and Meeting Planning

We have weekly 3 (Three) times meeting with the team. Our senior instructor also presents at every meeting. Our meeting time Monday, Wednesday, and Friday at 12:00 pm. Meeting usually last for 1 hour in order to distribute tasks, review timeline, and reset focus. We use the GoToWebinar platform as our conference call. Also, a project management tool named Trello is being used to track our progress.

Project Schedule and Tasks Planning

Deliverable	Tasks	Complete %	Assigned To	09/11	09/18	09/25	10/02	10/09	10/16	10/23	10/30	11/06	11/13	11/20	11/27	12/04	12/11
Learning Gap & Hands-on Front end and Back end Development	Learning and Hands-on Front-End development using HTML5, CSS3, Bootstrap, JavaScript & Angular	100 %	Saiful, Kamrul, Prathyusha, Hassan	20	12	1											
	Learning and Hands-on Front End development using Spring, Spring Boot and Microservices	0%	Saiful, Kamrul, Prathyusha, Hassan		10	15											
Project Design and Develop Quiz and Question service	Design thinking & architecture of the capstone project	0%	Saiful, Kamrul, Prathyusha, Hassan			5	10	4									
	Developing Quiz Service (Back-end Webservice)	0%	Prathyusha				10	4									
	Developing Question Bank Service (Back-end Webservice)	0%	Kamrul, Hassan				5	10	10								
	Developing Question Play Service (Back-end Webservice)	0%	Saiful						10	10							
Develop Analytics Service and UI Development	Developing Analytics Service (Back-end Webservice)	0%	Prathyusha					6	6	10	5	5					
	Developing UI using Angular part 1	0%	Saiful								10	10					
	Developing UI using Angular part 2	0%	Hassan									5	10	5			
	Implementing Authentication & Authorization	0%	Kamrul										8	5	10		
Implementing Integration and Deployment	Integration and Deployment	0%	Saiful, Kamrul, Prathyusha, Hassan											8	10	20	20
	Presentation Preparation and Formal presentation	0%	Saiful, Kamrul, Prathyusha, Hassan													10	10
	Finalize report and submission	0%	Saiful														20
	Total workload	329		20	22	21	25	24	26	20	15	20	18	18	20	30	50