

WEB APPLICATION

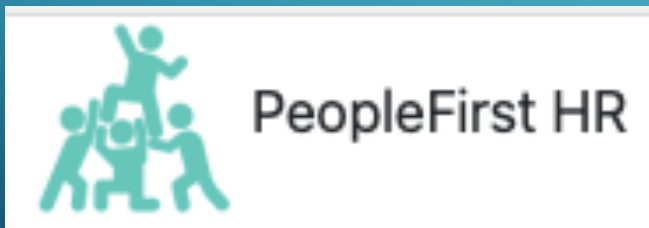
SANCHAYAN ARUDCHELVAM



INTRODUCTION

To create an OOP-based web application, with utilisation of supporting tools, methodologies, and technologies, that encapsulates all fundamental and practical modules covered during training.

HR Web Application



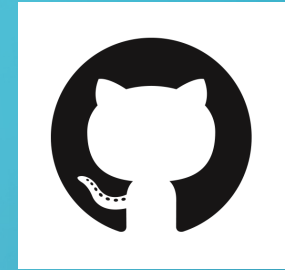
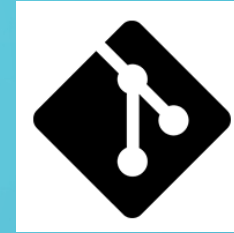
employee	
id	BIGINT
email	VARCHAR(255)
first_name	VARCHAR(255)
last_name	VARCHAR(255)
mobile	VARCHAR(255)
Indexes	
PRIMARY	

MINIMUM VIABLE PRODUCT

- CRUD functionality in both the API and front-end.
- Functional front-end
- Local Database in MySQL
- Testing coverage above 80%

TECHNOLOGY CONSTRAINTS

- **Version Control System:** Git
- **Source Code Management:** GitHub
- **Kanban Board:** Jira
- **Database Management System:** MySQL Server (Local)
- **Back-End Programming Language:** Java
- **API Development Platform:** Spring Boot
- **Front-End Web Technologies:** HTML, CSS, JavaScript
- **Build Tool:** Maven
- **Unit Testing:** JUnit, Mockito



SPRINT PLAN

Sprint 1	Sprint 2	Sprint 3
Monday	Tuesday - Wednesday	Thursday - Friday
<ul style="list-style-type: none">- Planning- Risk Assessment- ERD & UML- Jira- Git & GitHub	<ul style="list-style-type: none">- Create API- Connect to Database- Front-end creation	<ul style="list-style-type: none">- Front-end functionality- Unit testing- Integration testing- Build application- Presentation

SPRINT 1

Projects / PeopleFirst-HR

PH Sprint 1

Set up the Jira Kanban Board, Risk assessment and ERD for the project.

SA

Epic ▾

GROUP BY

None ▾

Insights

TO DO 2 ISSUES

As a Developer I want to complete a risk assessment so that I can understand the risks finishing the project.

DEVELOPER

PH-7 15

As a Developer I want to draft an ERD to plan the relationship of tables within the database.

DEVELOPER

PH-12 4

IN PROGRESS 1 ISSUE

As a Developer I want to create and clone a GitHub repository so that I can manage and track changes in the project.

DEVELOPER

PH-29 7

DONE 1 ISSUE ✓

As a Developer I want to create a Kanban Board to monitor and prioritise tasks for the project.

DEVELOPER

PH-3 7 SA

Developer / PH-29

1 ...

As a Developer I want to create and clone a GitHub repository so that I can manage and track changes in the project.

Attach Add a child issue Link issue ▾ ...

In Progress ▾

Description

Add a description...

Child issues

Order by ▾ ... +

75% Done

PH-30 Create a repo on GitHub. 1 DONE ▾

PH-31 Clone the repo locally. 2 DONE ▾

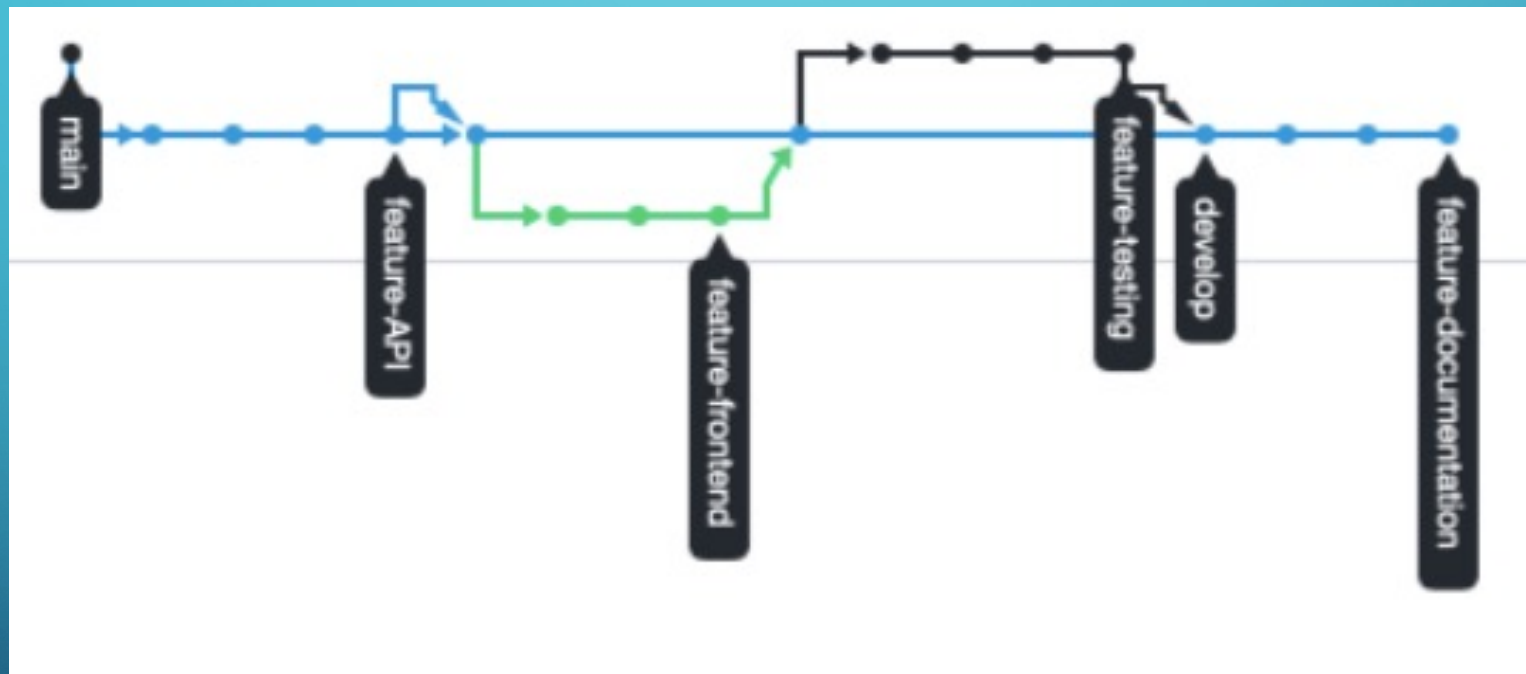
PH-32 create dev branch and push to remote repo. 2 DONE ▾

PH-33 Use feature-branch model to add updates to dev bran... 2 IN PROGRESS ▾

Risks			Initial Risk Level			Response		Risk Level after Control Measures			Final Review			
Risk ID	Cause	Effect	Likelihood	Severity	Overall Risk Level	Strategy	Control Measures	Likelihood	Severity	Overall Risk Level				
1	Minimum Viable Product not delivered	Developer is still undergoing training and has a limited programming experience. The code may not execute desired functions. Therefore unable to deliver an MVP.	3	5	15	Mitigate	Developer should use the courseware and the trainers help if any issues arise.	1	5	5	Did not effect the delivery of an MVP. Resources from QA community and trainers help was used to triubleshoot an errors.			
2	Product does not meet the minimum requirments	Not reading the project specification thoroughly and not prioritising the feautures to deliver the MVP.	1	5	5	Mitigate	Carefully read the project specifiction and create user stories for all required features for the MVP.	1	1	1	MVP requirements were prioroitised using MoSCoW. Was able to use deliver MVP.			
3	Poor time management	The project is complete frontend and backend. There is a lot of work to be done over 5 days. Some of the tasks may overrun due to inexperience.	3	5	15	Mitigate	Use sprints to complete tasks specified within user stories. Setting smaller deadlines for feautures throughout the project. This would help in better progress tracking and time management.	1	5	5	Was able to manage time well through implementation of sprints ans sticking to deadlines			
4	Loss of Wifi connection	There has been previous WiFi issues in the area. This can prevent offline work from being pushed to the online repository also leading to incomplete version control on github.	3	5	15	Avoid	Watch out for any WiFi issues. Move to a place with stable connection if issues arise.	1	1	1	No WiFi issues occurred.			
5	Unplanned absence	Absence due to unforeseen circumstances such as illness, could prevent the completion of the project	2	4	8	Accept	Absence due to unforeseen illness can not be planned for. The developer should inform the trainer as soon as possible so that adjustments can be made accordingly.	2	4	8	No unplanned absences	Severity		
												5	5	10
												4	4	8
												3	3	6
												2	2	4
			1	1	2									
			1		2									
						Like								
6	Hardware Failure	Current laptop is 5 years old and possibility of a crash is higher than normal. This would mean total data loss for the project and any progress along with it.	4	5	20	Mitigate	Make sure the laptop is updated and meets the minimum requirement to run the softwares required. Use git and github to continuously integrate work by pushing feature branches to dev branch frequently. So even if the laptop does crash there is backup of the source code in the repository.	2	1	2	No hardware flure and changes were regularly comitted and pushed to the remote repository.			
7	Test Coverage below 80%	Testing is new to the developer so understanding and implementing the code to all methods may be an issue to reach above 80% coverage.	3	5	15	Mitigate	Developer should use the courseware and the trainers help if any issues arise. Look at previous example to help compare.	2	2	4	Test coverage reached above 80%.			
8	Failed Integration between API and Frontend	Developer is using newly learnt technologies to implement a frontend and API integration. This may result in a not integrating frontend with backend.	2	5	10	Mitigate	Use previously made example from training as an example and look out for any typos and mistakes. If you run into further trouble gt help from trainers or peers.	1	1	1	No issues faced with integrating frontend with API.			

Severity	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	Likelihood					

FEATURE BRANCH MODEL



SPRINT 2

Projects / PeopleFirst-HR

PH Sprint 2

Finish Building the API and the Frontend html page.



0 days remaining

Complete sprint



Epic ▾

GROUP BY

None ▾

Insights

TO DO 2 ISSUES

As a Developer I want to create a controller class so that the API can send CRUD queries to the Database.

DEVELOPER

PH-24

12



As a Developer I want my client to be able to access the functions through a html page so that they can easily use the system.

DEVELOPER

PH-34

23



IN PROGRESS 1 ISSUE

As a Developer I want to set up a connection between the API and Database so that details entered by the user can be stored.

DEVELOPER

PH-17

4



DONE 2 ISSUES ✓

As a Developer I want to set up a connection between the API and H2 Database so that API functionality can be tested.

DEVELOPER

PH-14

✓

4



As a Developer I want to set up the tables in the database so that users input can be saved in the correct columns/tables.

DEVELOPER

PH-20

✓

5



Developer / PH-17



1



As a Developer I want to set up a connection between the API and Database so that details entered by the user can be stored.

Attach

Add a child issue

Link issue



In Progress ▾

Description

Add a description...

Child issues

Order by ▾

... +

0% Done

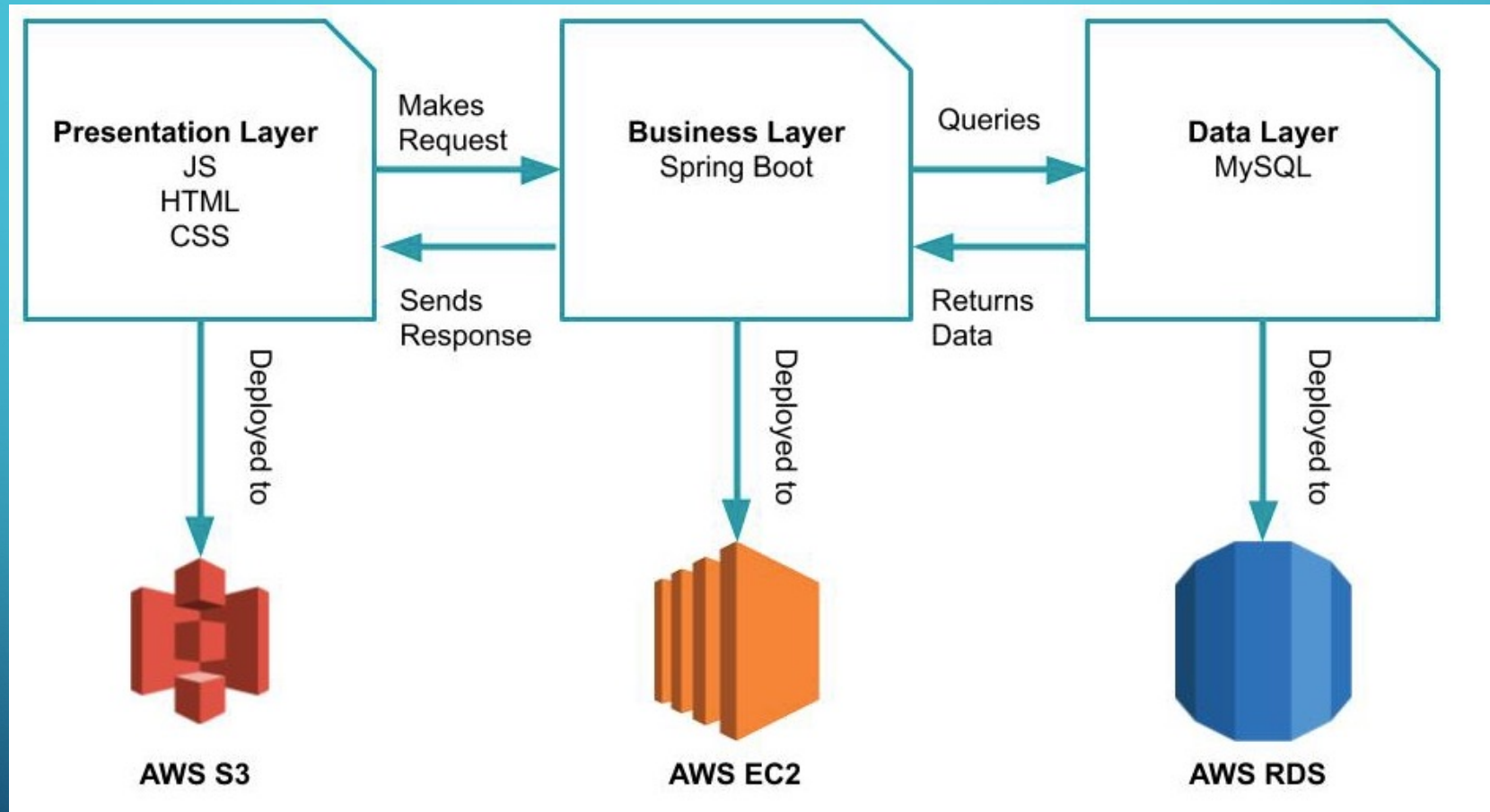
- PH-18 Include MySQL database dependency in pom.xml file. 2 IN PROGRESS ▾
- PH-19 Enable and configure JDBC URL in application.properties file. 2 TO DO ▾

Details

Assignee SA Sanchayan Arudchelvam

Labels None

THREE-TIER ARCHITECTURE



SPRINT 3

Projects / PeopleFirst-HR

PH Sprint 3

Finish running tests, build .jar file and push all documents to the repo.

SA

Epic ▾

GROUP BY

None ▾

Insights

TO DO 3 ISSUES

As a Developer I want to run integration testing so that I can be sure the API is sending and receiving expected responses from the database.

DEVELOPER

PH-51 20 SA

As a Developer I want to add a detailed Read.Me file to the repo so that user can easily download and run the package on their computer.

DEVELOPER

PH-56 6 SA

As a Developer I want to package the Java project into a .jar file so that users can run the program on their computer.

DEVELOPER

PH-61 6 SA

IN PROGRESS 1 ISSUE

As a Developer I want conduct unit testing so that I can be sure each method is returning what they are meant to.

DEVELOPER

PH-46 22 SA

DONE 4 ISSUES ✓

As a Manager I want to be able to add an employee to the system so that new employees can be put in the system.

HR-MANAGER

PH-38 ✓ 5 SA

As a Manager I want to update employees in the system so that any changes can be updated in the system.

HR-MANAGER

PH-39 ✓ 5 SA

As a Manager I want to view all employees in the system so that I can see if details have been entered correctly.

HR-MANAGER

PH-40 ✓ 5 SA

As a Manager I want to delete an employee from the system so that I can remove any employee that no longer works here.

HR-MANAGER

Developer / PH-46

1 ...

As a Developer I want conduct unit testing so that I can be sure each method is returning what they are meant to.

Attach Add a child issue Link issue ▾ ...

In Progress ▾

Description

Add a description...

Child issues

Order by ▾ ... +

PH-47 Add JUnit Dependency

3 DONE ▾

PH-48 Add Mockito Dependency.

3 DONE ▾

PH-49 Run Unit tests on EmployeeController methods.

8 IN PROGRESS ▾

PH-50 Run Unit tests on Employee Service methods.

8 TO DO ▾

Details

Assignee SA Sanchayan Arudchelvam

SA

Pro tip: press **M** to comment

TESTING

Integration Test

```
@Test
public void createTest() throws Exception {

    Employee entry = new Employee("Sanchay", "Arun", "sanchay.arun@outlook.com", "07312345679");
    String entryAsJSON = mapper.writeValueAsString(entry);

    Employee response = new Employee(2L, "Sanchay", "Arun", "sanchay.arun@outlook.com", "07312345679");
    String responseAsJSON = mapper.writeValueAsString(response);

    mvc.perform(post("/employee/create")
        .contentType(MediaType.APPLICATION_JSON)
        .content(entryAsJSON))
        .andExpect(content().json(responseAsJSON));

}
```

Unit Test

```
@Test
public void testCreate() {

    // Create An object for saving
    Employee entry = new Employee("Emily", "Bradfield", "emily.bradfield@outlook.com", "07312345679");

    // Create an object for the result
    Employee response = new Employee(2L, "Emily", "Bradfield", "emily.bradfield@outlook.com", "07312345679");

    Mockito.when(repo.saveAndFlush(entry)).thenReturn(response);

    assertEquals(response, service.create(entry));

}
```

Element	Coverage
▼ PeopleFirstHR	<div><div></div></div> 95.8 %
▼ src/main/java	<div><div></div></div> 86.0 %
> com.qa.main.domain	<div><div></div></div> 77.8 %
> com.qa.main	<div><div></div></div> 37.5 %
> com.qa.main.exceptions	<div><div></div></div> 0.0 %
> com.qa.main.service	<div><div></div></div> 97.5 %
> com.qa.main.controller	<div><div></div></div> 100.0 %
▼ src/test/java	<div><div></div></div> 100.0 %
> com.qa.main	<div><div></div></div> 100.0 %
> com.qa.main.controllers	<div><div></div></div> 100.0 %
> com.qa.main.service	<div><div></div></div> 100.0 %

The background is a blue gradient. In the corners, there are white line-art illustrations of circuit boards or neural networks, with lines and small circles representing nodes.

DEMO

SPRINT RETROSPECTIVE

What went well:

- Was able to deliver an MVP
- Test coverage above 80%
- Front-end and backend functional
- Project management

Improvements:

- Styling of HTML page
- Adding further entities
- Edit button
- Search by name function
- Table view of stored data

The background is a blue gradient. In the corners, there are white line-art illustrations of circuit boards or neural networks, with lines and small circles representing components.

THANK YOU FOR LISTENING

Sanchayan Arudchelvam

<https://github.com/sanchayarun>