MIDDLEWARE BASED ON ITEC CLOUD ARCHITECTURE

AMNA
MES20MCA-2005
PRODUCT OWNER : VASUDEVAN T . V

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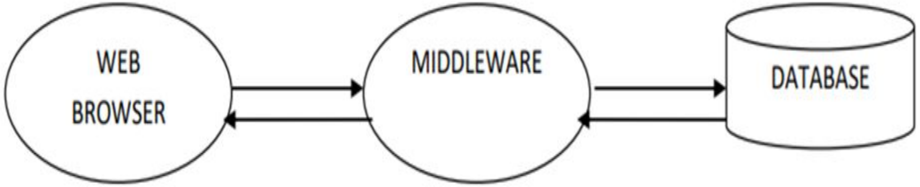
PROJECT DESCRIPTION

This project is to develop a middleware comprising of a web server and an application server, which is capable of accepting a request from clients and executing PL/SQL application programs conforming to Itec Cloud architecture. The Client can be a browser-based client implemented in javascript Or Stand alone client in any language, Provided these clients can interpret and create screen widgets on receiving itec-cloud commands as well as send validation and submission requests to the middleware.

Since the web server and application server are combined, there is no synchronization problem. Tracking and identifying returning customers are smooth by using tokens that are prepended to each validation request using the GET method.POST method is not used. Backend business code decides whether it is a submission or only validation. This enables the PL/SQL Code to take any validation request as submission depending on different scenarios.

Since it is written in java and java VM is available anywhere, it is not OS restricted like Microsoft IIS. Since multiple threads are used for PL/SQL function execution calls, it is multitasking. Java can run multiple threads unlike python where it is restricted by Global Interpreter Lock runs only one thread at a time. One problem with simultaneous execution is synchronizing shared variables for sharing data by two threads. Shared variables are not used instead, messages passing through queues,one for writing and another for reading, are used. Using HTML and Javascript for constructing application, requires huge size of code. ItecCloud architecture contains compact command sets to construct applications.Using PL/SQL, programs in this command set is created and sent to the middleware. Middle checks for commands to be processed by middleware (which are very few) and sends rest to the client.

Data Flow Diagram



DEVELOPING ENVIRONMENT

Development Platform:

★ It is written in notepad.

★ Java 8 Compiler.

★ Browser can be anybrowser

Database :

★ Database used is oracle 11g xe

Hardware environment:

★ Pc with dual core intel microprocessor 4GB memory and 500GB hard disk 14 inch monitor.

★ 100 mbps Network card.

METHODOLOGY

Middleware

a)To change the middleware to accept and cut connections and to identify returning clients. In order to identify returning client, the client should send a token which is embedded in the javascript client as a variable. On the first request of a client, the middleware generates a unique token and changes the value of the variable in the javascript file before sending it to the client.

b)To create a class to keep details of clients including the database connection socket , Token number , Current Program number etc.

PROJECT PLAN

ID	Task Name	Start Date	End Date	Days	Status
1	Sprint 1	16/04/2022	28/04/2022	13	Completed
2	Sprint 2	05/05/2022	18/05/2022	14	Completed
3	Sprint 3	24/05/2022	06/06/2022	14	Completed
4	Sprint 4				Planned
5	Sprint 5				Planned

PRODUCT BACKLOG

ID	Priority <High/Medium/Low>	Size (Hours)	Sprint <#>	Status <Planned/In progress/Completed>	Release Date	Release Goal
1	High	10	1	Completed	28/04/2021	Control thread
2	High	10	2	Completed	18/05/2021	Database access Thread
3	High	10	3	Completed	06/06/2021	Writing a login package in PL SQL
4	Medium			Planned		Writing a menu program and calling an application package
5	High			Planned		Testing DB access

SPRINT BACKLOG PLAN

SPRINT 1

Backlog Item	Status & completion date	Original estimate in hours	Day1 16/04	Day2 17/04	Day3 18/04	Day4 19/04	Day5 20/04	Day6 21/04	Day7 22/04	Day8 23/04	Day9 24/04	Day10 25/04	Day11 26/04	Day12 27/04	Day13 28/04	Day14 29/04
Coding	25/12/22	7	1	0	2	0	0	2	0	0	0	2	0	0	0	0
Testing	28/01/22	3	0	0	0	0	0	0	0	0	0	0	0	1	2	0
TOTAL		10	1	0	2	0	0	2	0	0	0	2	0	1	2	0

SPRINT BACKLOG PLAN

SPRINT 2

Backlog Item	Status & completion date	Original estimate in hours	Day1 05/05	Day2 06/05	Day3 07/05	Day4 08/05	Day5 09/05	Day6 10/05	Day7 11/05	Day8 12/05	Day9 13/05	Day10 14/05	Day11 15/05	Day12 16/05	Day13 17/05	Day14 18/05
Coding	16/05/22	8	0	2	0	0	0	2	0	0	3	0	0	1	0	0
Testing	18/05/22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL		10	0	2	0	0	0	2	0	0	3	0	0	1	0	2

SPRINT BACKLOG PLAN

SPRINT 3

Backlog Item	Status & completion date	Original estimate in hours	Day1 24/05	Day2 25/05	Day3 26/05	Day4 27/05	Day5 28/05	Day6 29/05	Day7 30/05	Day8 31/05	Day9 01/06	Day10 02/06	Day11 03/06	Day12 04/06	Day13 05/06	Day14 06/06
Coding	04/06/22	8	1	0	0	0	0	3	1	0	1	0	0	2	0	0
Testing	06/06/22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL		10	1	0	0	0	0	3	1	0	1	0	0	2	0	2

SPRINT BACKLOG ACTUAL

SPRINT 1

Backlog Item	Status & completion date	Original estimate in hours	Day1 16/04	Day2 17/04	Day3 18/04	Day4 19/04	Day5 20/04	Day6 21/04	Day7 22/04	Day8 23/04	Day9 24/04	Day10 25/04	Day11 26/04	Day12 27/04	Day13 28/04	Day14 29/04
Coding	26/12/22	7	1	0	2	0	0	2	0	0	0	1	1	0	0	0
Testing	28/01/22	3	0	0	0	0	0	0	0	0	0	0	0	1	2	0
TOTAL		10	1	0	2	0	0	2	0	0	0	1	1	1	2	0

SPRINT BACKLOG ACTUAL

SPRINT 2

Backlog Item	Status & completion date	Original estimate in hours	Day1 05/05	Day2 06/05	Day3 07/05	Day4 08/05	Day5 09/05	Day6 10/05	Day7 11/05	Day8 12/05	Day9 13/05	Day10 14/05	Day11 15/05	Day12 16/05	Day13 17/05	Day14 18/05
Coding	16/05/22	8	0	2	0	0	0	2	0	0	2	0	0	2	0	0
Testing	18/05/22	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL		10	0	2	0	0	0	2	0	0	2	0	0	2	1	1

SPRINT BACKLOG ACTUAL

SPRINT 3

Backlog Item	Status & completion date	Original estimate in hours	Day1 24/05	Day2 25/05	Day3 26/05	Day4 27/05	Day5 28/05	Day6 29/05	Day7 30/05	Day8 31/05	Day9 01/06	Day10 02/06	Day11 03/06	Day12 04/06	Day13 05/06	Day14 06/06
Coding	04/06/22	8	1	0	0	0	0	3	0	0	2	0	0	2	0	0
Testing	06/06/22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL		10	1	0	0	0	0	3	0	0	2	0	0	2	0	2

THANK YOU!!!