Different types of Java Frameworks
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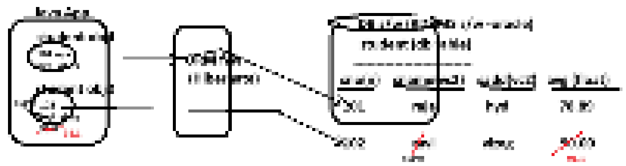
=> Based on the kind of Apps we develop there are 4 types of Java Frameworks in java

a) ORM frameworks (Object Relational Mapping Frameworks)
b) MVC Frameworks (Model View Controller Frameworks)
c) Web Services Frameworks /Distributed App frameworks
d) JEE Frameworks (Application Frameworks)

a) ORM frameworks (Object Relational Mapping Frameworks)

=>ORM = Object Relational Mapping (Linking the object of java class with DB table record)
=> Each object of java class will be linked with each record of DB table, So all CURD Operations on that record will be done through objs with out using any SQL Queries.

=> (Or) the objs of java class (Objects) are linked (mapped) with the records of Relational DB S/W db table (Relational DB)



=> In this mapping, all the persistence operations (CURD operations) takes place using the objects of java classes having without writing SQL Queries, Since these objs are common for all DB s/w we can say this objects based persistence logic is DB s/w independent persistence logic

=>Examples of ORM f/ws

Hibernate ---------> from SoftTree (RedHat) (1)
Toplink ---------> from Oracle corp
OJB (Object Java Beans) ---------> from apache
Link ---------> from Eclipse (2)
iBatis ---------> from Apache (3)
and etc..

Q) Why should I use ORM f/w for persistence logic development when i can do that work using JDBC technology?

Ans) JDBC Persistence logic (CURD operations logic) is SQL Queries based Persistence logic where the SQL Queries are DB s/w dependent Queries, Due to this JDBC Persistence logics are DB s/w dependent Persistence logics i.e they are not portable across the multiple DB s/ws (Changing DB s/w is very complex)

To overcome these problems use ORM f/ws which allows us to develop objects based DB s/w independent persistence logics with out using any SQL Queries.

Q) Is the JDBC Technology Out Dated Technology?

Ans) JDBC is not out dated and will never be outdated bcoz all the ORM f/ws directly or indirectly uses JDBC code +SQL queries internally to complete the persistence operations based on the Objects based Persistence instructions that it has received.

We can say the direct utilization of JDBC is reduced and Indirect utilization of JDBC is increased

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Persistence :: The process of storing and managing data for long time
Persistence Store :: The place where the data managed for long time
eg:: DB s/w , Files
Persistent Data :: The data managed in persistence store
eg:: file content , Db table records
Persistence Operations :: CURD Operations performed on the Persistence Data
(insert,update , delete and select operations)
Persistence Logic :: The logic using which persistence operations takes place
eg:: jdbc code , hibernate code

Persistence Technology/Framework: The technology or framework using which persistence logic is developed
eg:: JDBC (technology) , Hibernate (framework)

=> In spring framework we have ORM , data jpa modules providing abstraction on ORM f/ws like hibernate
=> In spring boot framework we have ORM , data jpa Modules providing abstraction on ORM f/ws like hibernate

Note:: compare to spring ORM/spring boot ORM frameworks more abstraction is possible with spring data jpa /Spring boot data jpa modules

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=> HEre the objs of java class

Relationl DB s/w db table

Java App

student ob 1

101 raja

bvd 7839

student obje

surya 102

ravi vizag 90.0

91.1

(Object) are linked (mapped) with the records of (Relational DB)

DB s/w (RDMS s/w -oracle) student (db table)

sno(n) sname vc2) sadd(vc2) avg (float)

ORM f

(Hibernate)

01

raja

hyd

78.89

102

rávi

vizag

90.00

91.1

surya

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&

(Developer)

Д

Spring/spring boot App

(having objects based

o-r mapping persistence logic)

Spring data jpa/ Spring boot data jpa module

JDBC Technology

HILT

ORM framework

(hibernate)

DB s/w

b) MVC Frameworks (Model View Controller Frameworks)

=> MVC means Model View Controller.. It is all about keeping different logics in different classes or files and making them talking with each other

M ---> Model Layer ---> represents Data and imp logics (service logics, persistence logics)

V ---> View Layer ---> represents presentation logics (UI Logics)

C ---> Controller Layer ---> represents Monitoring Logics

=>MVC f/ws provide abstraction on servlet,jsp technologies to

simplify the MVC architecture based Web application as the Layered App

eg:

--> from apache

STruts JSF -->Sum Ms (oracle corp) (3) Spring MVC ----> Interface21 (Pivotal Team)

(2)

Spring Boot MVC ----> Interface21 (Pivotal Team) (1) WebWork ----------> from open symphony

and etc..

c) Web Services Frameworks/Distributed App frameworks

Examples of web applications/ websites

flipkat.com, nareshit.com, amazon.in and et.. =>Websites are the software Apps whose clients are browsers. It is always browser to software App interaction

=> Web applications are basically C2B applications (Customer to Business Applications)

Web Services is the Latest mechanism /methodology to develop distributed App in multi language env..

=>

i.e the Client and server Apps of the Distributed App can be there either in same language or in different languages

Distributed App

==========

=>The App whose services can be consumed from different types of Client Apps either locally or remotely is called Distributed App

=> In Distributed App env.. the setup is going to be B2B setup (Business to Business setup) nothing but App to App interaction

=> Web application/website is c2b setup (browser to Software App setup)

browser ----> flipkart.com, browser ----> nareshit.com and etc..

=> Distributed App is b2b setup (App to App interaction) flipkart.com ------> Google Pay App, amazon.in -----> paypal

(app)

(App)

(App)

(app)

(App) (server)

ICC International Cricket Council

crickbuzz.com -----> ICC App

(App) (client)

=> The Distributed App (server App of Distributed App) can have following types of client apps

a) Desktop App b) Mobile App c) web site d) IOT App

e) Embedded System app (swipe machine) f) another distributed App

Mobile App

(gpay app

Website (flipkart.com)

(home automation)

alexa device IOT App)

network

Machine 100

Gpay Server App

(Distirbuted App)

(Embedded Systems)

swiping machine

dred app (another distributed App)

UPI Payment apps are

Browser to s/w App interaction is web application

App to App interaction is distributed App

-> Gpay, Phone Pe, Amazon pay and etc..

Enterprise App :: web application or distributed app or web application + Distributed App

eg::

E-commerce app with UPI Payment

browser -----> myntra.com -----> Gpay App --------> BankApp

web application

distributed app

distributed app

eg: E-commerce app with credit/debit card payment

(e-commerce) (payment broker) (Payment GatewayApp)

browser ----> flipkart.com --------> paypal ----------> `VISA/MASTER/..... --> Bank App(SBI/ICICI)

web application

distributed app

distributed app

distributed app

=> Payment broker Apps acts as bridge b/w e-commerce apps and payment gateway apps eg:: paypal, razor pay, payu money, nimo pay and etc..

=> The Payment gateway Apps provide world wide infrastructure to operate the credit cards and debit cards

eg:: VISA App, MAster App, MAstreo App, Cirrus App and etc..

=> We can use servlet,jsp technologies of java to develop web applications

=> We can use struts, jsf, webwork and etc.. frameworks of java to develop web applications

=> we can use RMI,EJB, CORBA, jax-rpc, jax-ws, jest) technologies to develop distributed Apps in java

(outdated)

(webservices based)

web service based

=> we can use Spring HttpInvoker, Spring/Spring boot Rest, RestEasy, Jersy, Restlet and etc.. frameworks

to develope Distributed Apps in java (best)

RMI :: Remote Method Invocation, EJB :: Enterprise JAva Beans , CORBA :: Common Object Request Broker ARch

=> we can spring/spring boot frameworks to develop Stand alone apps, web applications and Distributed apps using both monolith or micro Services architectures

=> The app that is specific to one computer and can be operated one user at a time is called standalone app

eg:: calc app, class with main(-), VLC player, Desktop game and etc..

=> web applications are c2B Apps

eg: nareshit.com flipkart.com, hyd.com, MakeMyTrip.com and etc...

,

=>Distributed Apps are B2B Apps

eg: UPI Payment apps (Gpay,Phone pe and etc), BankApps, BSE App, ICC Scoring App and etc..

What is the difference b/w web application and Distributed app?

Distributed App

web application

==========

tibrowser

a) It browser to software App interaction based (c2B App)

Application

b)It is called Thin Client - Fat server based

Client -Server app

c) The only allowed protocols are

http,https

d) Here the communication model b/w

Client and Server app is request -response model

e) The client app is fixed browser s/w

f)use servlet,jsp technologies to develop

the web applications in java

==========

a)It is App to App interaction (B2B App)

b) It is Fat Client - Fat Server App based Client -Server App

c) Here multiple protocols are allowed http, https, smtp, iiop,jrmp and etc..

d) Here the communication model b/w Client and server app is method invocation model (for RMI,EJB,CORBA) and request -response model in webServices

e) The Client App can be a mobile app or web application or IOT App or embedded system App or another distributed app

f)use RMI,EJB,CORBA technologies to develop the Distributed Apps in java

g) use struts,jsf, spring mvc,spring boot mvc

g) use http invoker, spring Rest,spring boot rest

and etc.. frameworks to develop web applications and etc.. f/ws to develop distributed apps

in java

f) eg :: nareshit.com, hyd.com, myntra.com

and etc..

g) NSE App, weather Report App, Cowin App

and etc..

http:: Hyper Text Transfer Protocol https:: Http over SSL

iiop :: Inter internet ORB protocol jrmp :: Java Remote Method Protocol smtp :: Simple Mail Transfer Protocol