OPEN SOURCE SOA BASED MIDDLEWARE FRAMEWORK FOR CLASSIFIED BASED WEB DEVELOPMENT

OUR TEAM

Supervisor	Mr. Nuwan Kodagoda
External Supervisor	Mr. Tharindu Edirisinghe

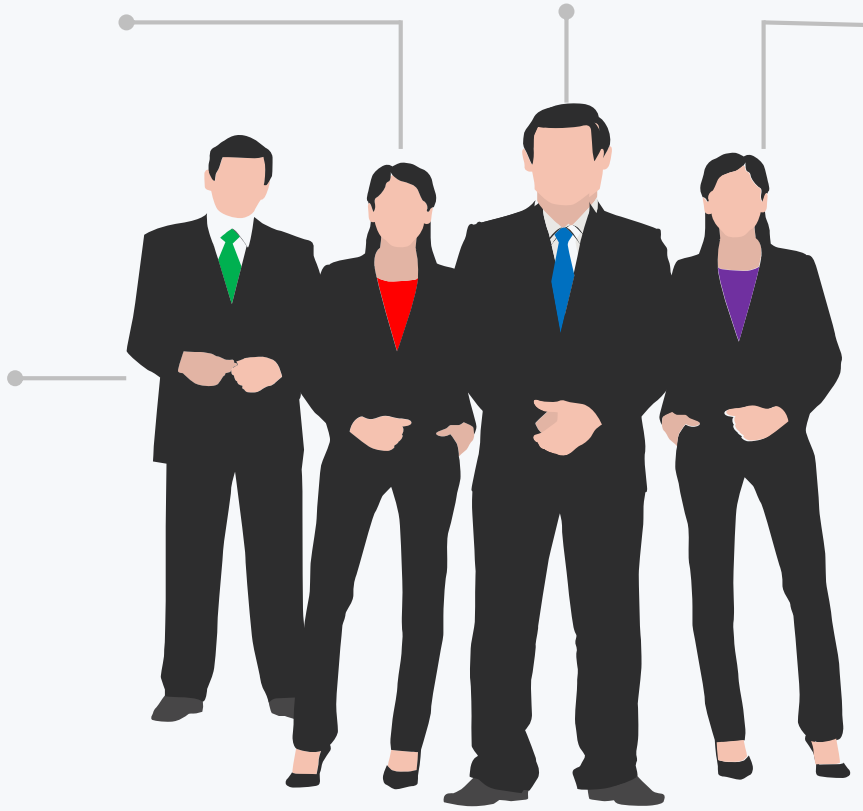
Group NO : 17-072

K.S.D.A. Kulathunga

I.H. Liyanaarachchi

B.R.K.S. Kumari

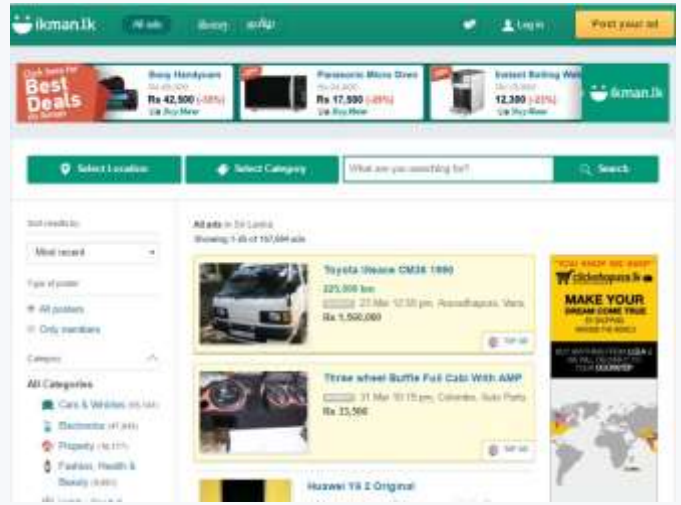
W.M.N. Radith



INTRODUCTION

WHAT IS CLASSIFIED WEB DEVELOPMENT?

- The invention of classified web sites revolutionized the era of printed news papers.
- Classified web development originated with the time when online classifieds was introduced



With the influence of web technology classified advertising gain flexibility and more features.

Printed media

Only text

Need to be short

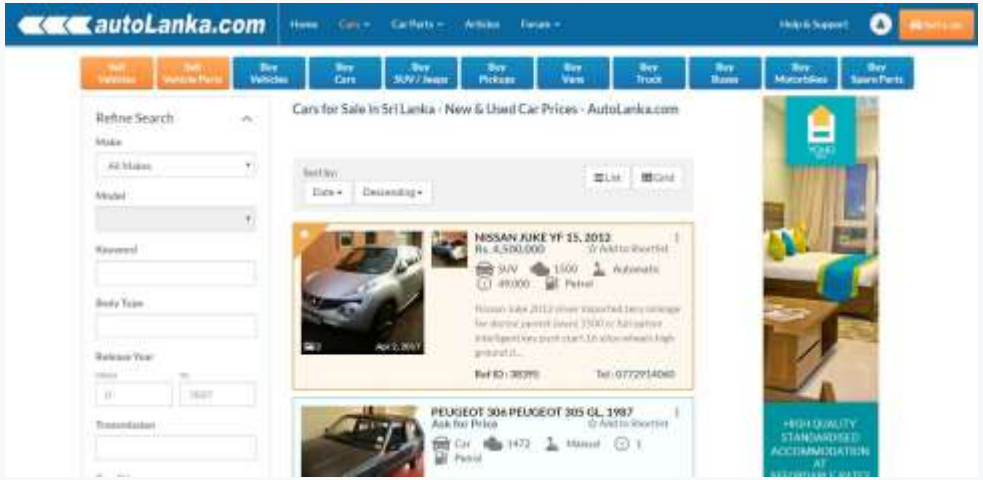
VS

Web Platform

Text + images

Can be longer

Searchable



SIMILAR FRAMEWORKS

01 **YCLAS – (OPEN CLASSIFIEDS)** Yclas is a tool which enables the user with little to no knowledge in website design to create their own website

02 **FLYNAX** Is a php script developed based on MVC architecture

03 **OXY CLASSIFIEDS** Is a powerful, flexible and fast php classifieds script.

04 **TITAN CLASSIFIEDS** allow you to create and manage a clean, professional, customizable classified website

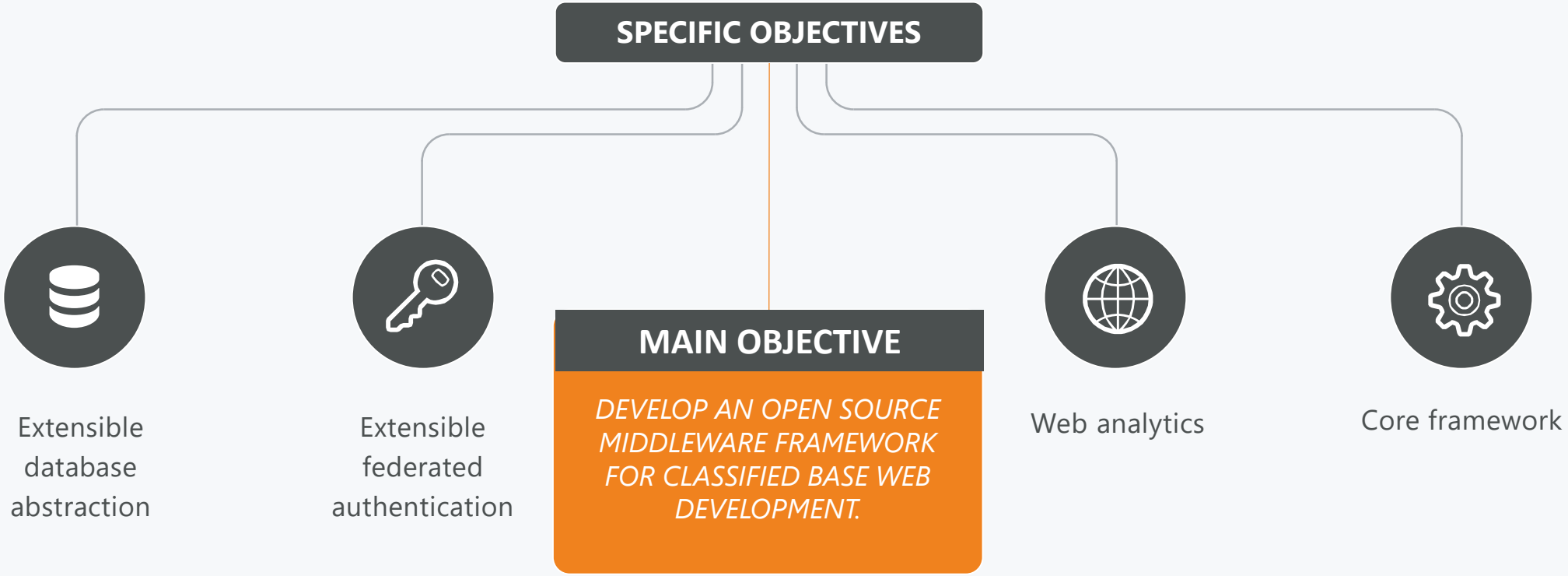
05 **OS CLASS** Is a php script that allows you to quickly create and manage your own free classified sites

06 **CLASSIPRESS** Is a word press plugin which helps to create and manage classified websites

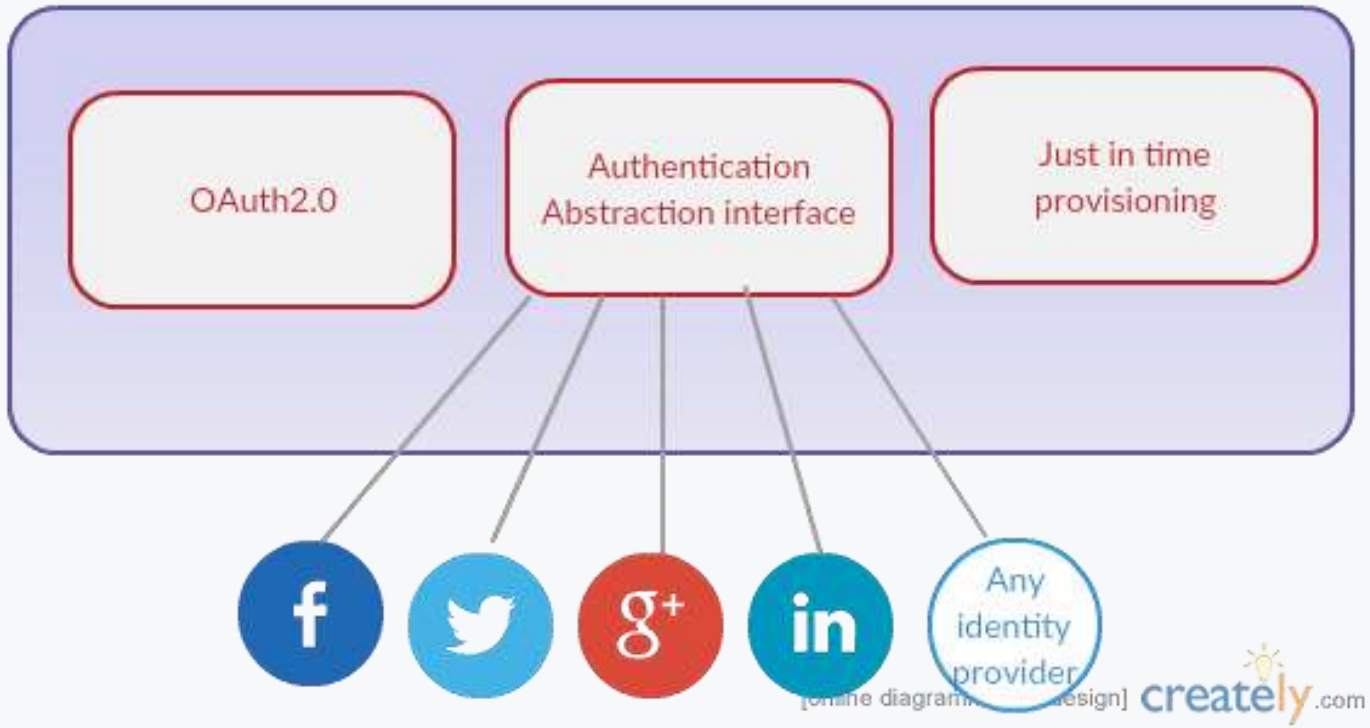
FEATURE COMPARISON

Features	Yclas (OpenClassifieds) Framework	Flynax	Oxy classifieds	Titan classifieds	Os class	ClassiPress	Proposed Framework (Ampliar)
Open Source	Yes	No	No	No	Yes	No	**Yes**
Free	Yes	No	No	No	Yes	Yes	**Yes**
Extensible Database Abstraction	No	No	No	No	No	No	**Yes**
Social Login	Yes	Yes (Only facebook)	Yes	No	Yes (Only facebook)	Yes	**Yes**
Extensible Federated Authentication	No	No	No	No	No	No	**Yes**
Web Analytics	Yes	No	No	No	No	No	**Yes**

OBJECTIVES


SPECIFIC OBJECTIVES
Extensible database abstraction
Extensible federated authentication
MAIN OBJECTIVE
DEVELOP AN OPEN SOURCE MIDDLEWARE FRAMEWORK FOR CLASSIFIED BASE WEB DEVELOPMENT.
Web analytics
Core framework

EXTENSIBLE FEDERATED AUTHENTICATION



EXTENSIBLE FEDERATED AUTHENTICATION

- Apart from the local authentication, ampliar framework supports federated authentication.
- Federated authentication allows user to use an already existing identity provider and get authenticated to the system.
- Major identity providers such as facebook, twitter, google+ and linkedin support the federated authentication for the framework by default.
- And an extension point will be provided to implement support for any other identity provider.

COMPONENT DEMONSTRATION

SOLUTION

- Achieve extendibility

```
public abstract class Authentication {
    public abstract String getAuthorizationcode(HttpServletRequest request);
    public abstract String getAccessToken(String output,HttpServletRequest request);
    public abstract void getprofiledetails(HttpServletRequest request,String UserInfoEndpoint,String accessToken);
}

public class Facebook extends Authentication{
    public String getAuthorizationcode(HttpServletRequest request)
    {
        ...
    }
    public String getAccessToken(String output,HttpServletRequest request)
    {
        ...
    }
    public void getprofiledetails(HttpServletRequest request,String UserInfoEndpoint,String accessToken)
    {
        ...
    }
}

public class Twitter extends Authentication...
public class Linkedin extends Authentication...
public class Google extends Authentication...
```

SOLUTION

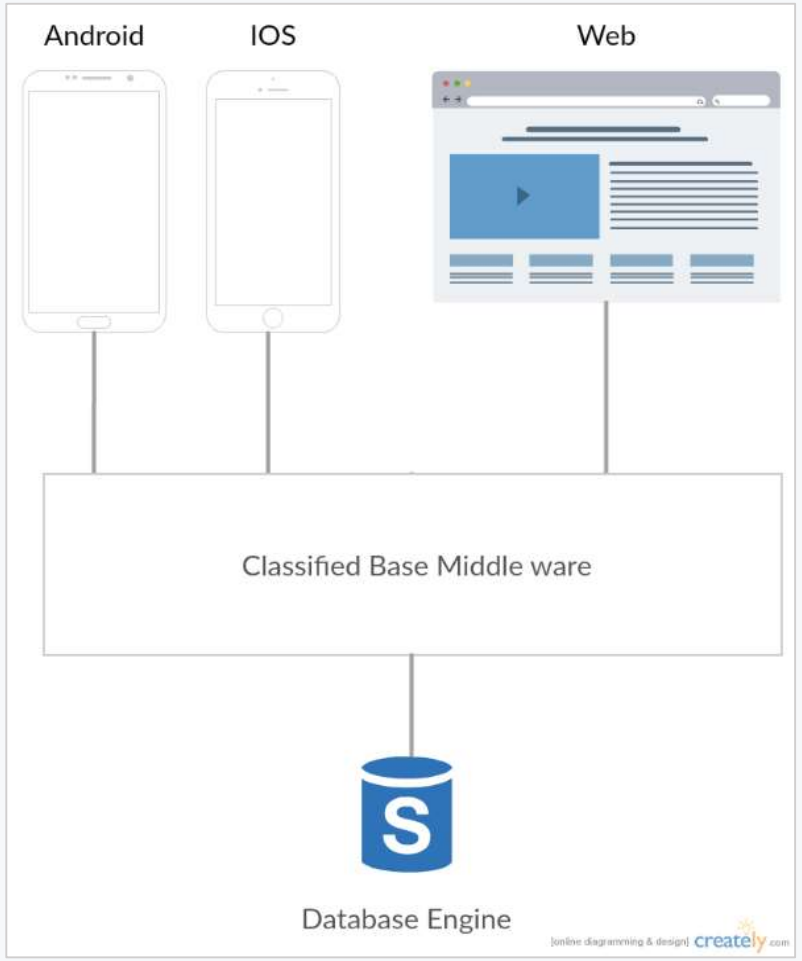
- We have used a xml file to get the keys and URLs related to specific connectors.

```
<?xml version="1.0" encoding="windows-1252"?>

<connectors>
    <connector name="Linkedin">
        <clientid>812j558k7kkegx</clientid>
        <clientsecret>KsshjjVz47p6lzcX</clientsecret>
        <authorization_endpoint>https://www.linkedin.com/uas/oauth2/authorization</authorization_endpoint>
        <token_endpoint>https://www.linkedin.com/uas/oauth2/accessToken</token_endpoint>
        <client_endpoint>http://localhost:8080/TestProject/Linkedincallback</client_endpoint>
        <grant_type>authorization_code</grant_type>
        <response_type>code</response_type>
        <scope>r_basicprofile r_emailaddress</scope>
        <state>123456</state>
    </connector>
    <connector name="Facebook">
        <clientid>1741364576163534</clientid>
        <clientsecret>d23e5754aa74dad41e8eebfe16f3b764</clientsecret>
        <authorization_endpoint>https://www.facebook.com/dialog/oauth</authorization_endpoint>
        <token_endpoint>https://graph.facebook.com/oauth/access_token</token_endpoint>
        <client_endpoint>http://localhost:8080/TestProject/Facebookcallback</client_endpoint>
        <grant_type>authorization_code</grant_type>
        <response_type>code</response_type>
        <scope>public_profile email</scope>
    </connector>
     <connector name="Google">
        <clientid>642110263906-sotsrsaeinlsudtfig5dhuvq97247ohe.apps.googleusercontent.com</clientid>
```

IMPROVEMENTS & FUTURE DEVELOPMENTS

- Modify the xml file with connector enable attribute and load the login page dynamically.
- Track user activities when logged in with federated authentication.
- Implement local authentication mechanism to the framework.

CORE FRAMEWORK



CORE FRAMEWORK

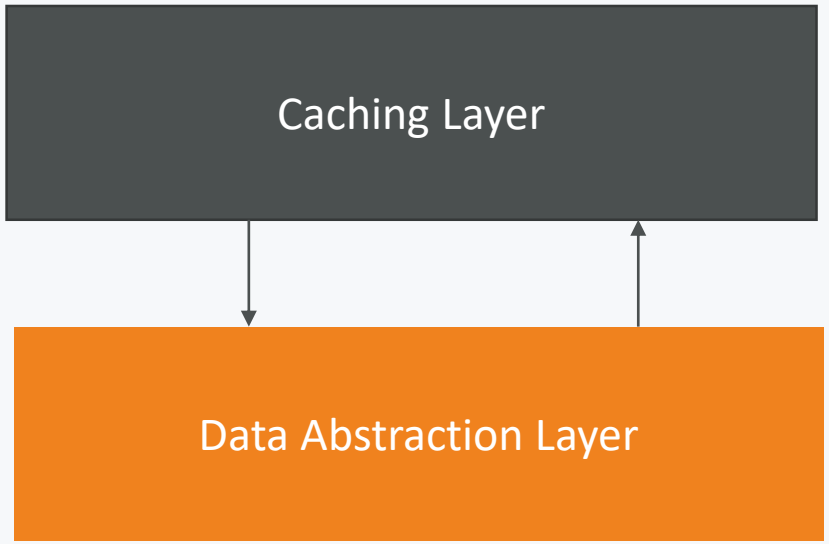
- Integrate other components. (Database extension, authentication extension and analytics generator)
- Expose APIs for all functionality related to classified based websites.
- Those services should be secure with OAuth 2.0 protocol.
- Handle permissions, roles and security of the core framework.
- Manage routing, services, libraries, plugins and configurations of the framework.
- Manage core functionalities such as adding, editing, deleting and viewing advertisements.

COMPONENT DEMONSTRATION

SOLUTION

EXTENSIBLE DATABASE ABSTRACTION

This module handles everything between core framework & database engine



CONTAINS TWO LAYERS

1. Caching layer
2. Data abstraction layer

CACHING LAYER

Cache each search query for constant amount of time.

DATA ABSTRACTION LAYER

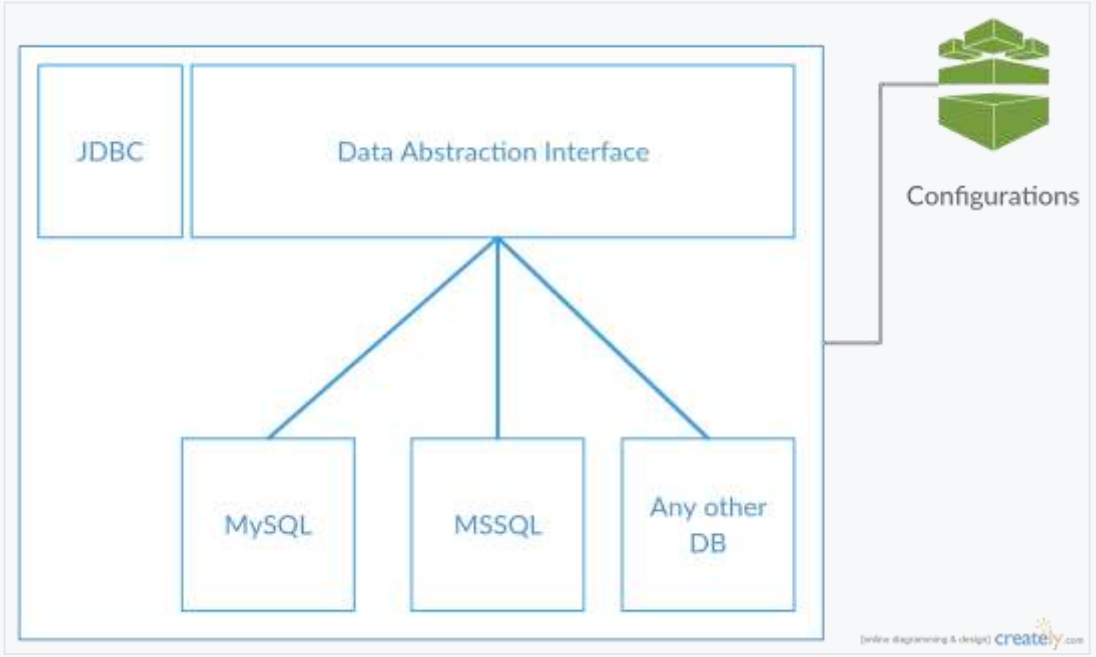
Query the database. By default support MySQL, MSSQL, PostgreSQL and oracle. Can be extensible by the developer

CONFIGURATION FILE

This file contains cache pool configurations + database connection configurations .

EXTENSIBLE DATABASE ABSTRACTION

- Ampliar framework should support for major database vendors.
- By default framework will support MySQL, MsSQL, OracleSql and PostgreSQL.
- If developer wishes to plug a custom data store (eg: file based, service based… etc) the same functionality can be implemented extending the methods provided by the framework in the database layer and the new component can be easily plugged in.



COMPONENT DEMONSTRATION

SOLUTION

Achieve extendibility

```java
@Override
public boolean insertAdvertisment(Advertisment adv) {


    String query = "INSERT INTO ads (published_by,ad_name,ad_price,sub_category_id,district_local_area_id,status) VALUES (?,?,?,?,?,?)";
    try {
        PreparedStatement pst = con.prepareStatement(query);
        pst.setInt(1, adv.getPublishedBy());
        pst.setString(2, adv.getDescription());
        pst.setString(3, adv.getAdvertismentPrice());
        pst.setInt(4, adv.getSubCategory());
        pst.setInt(5, adv.getDistrictLocalArea());
        pst.setInt(6, 1);

        pst.execute();
        return true;

    } catch (SQLException e) {
        // TODO Auto-generated catch block
        e.printStackTrace();

    }

    return false;
}
```

```java
package com.ampliar.services.dbmodule;

import java.util.List;

public interface DataAccess {

    public List<Object> findAll();
    public List<Object> findById();
    public List<Object> findByName();
    public boolean insertAdvertisment(Advertisment adv);
    public boolean updateAdvertisment(Advertisment adv);
    public boolean deleteAdvertisment(Advertisment adv);

}
```

SOLUTION

Easy configurations

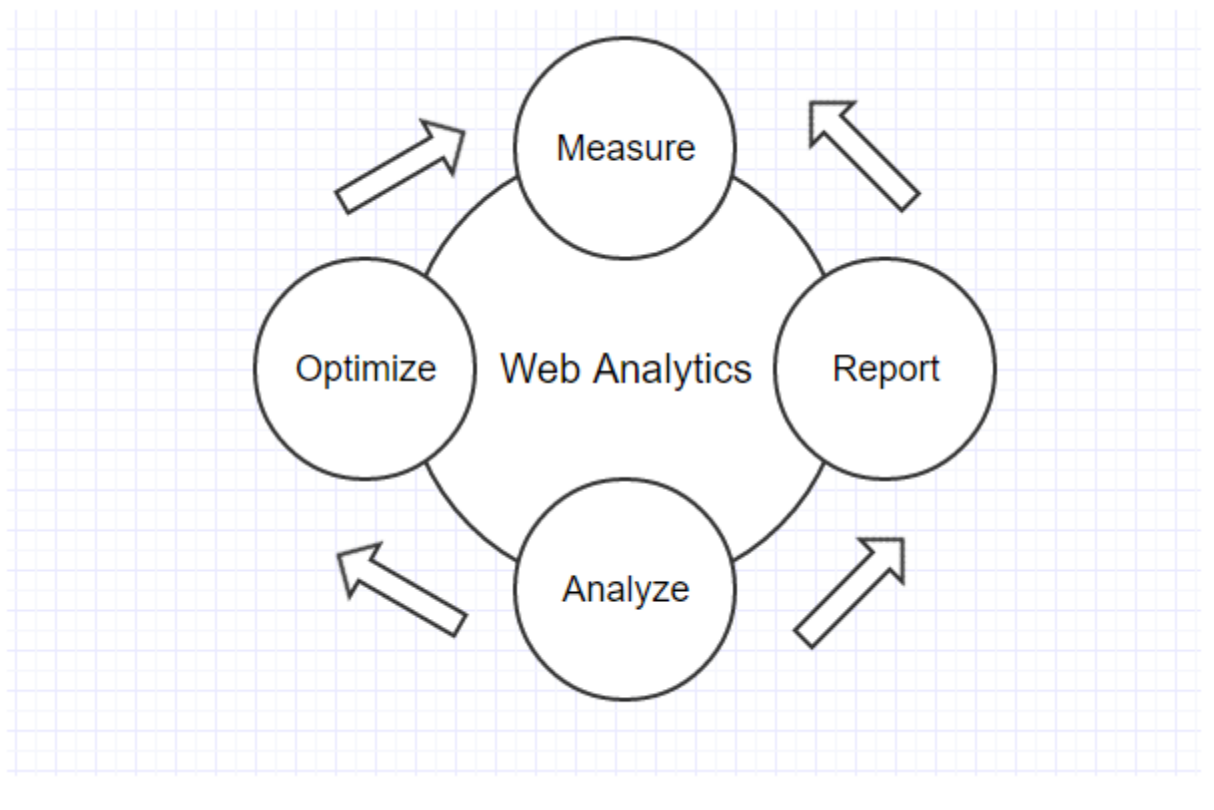
```
#database connection configuration details

## mysql connection configurations

#dbms=mysql
#host=localhost
#port=3306
#dbuser=root
#dbpassword=
#database=ampliar

## postgresql connection configurations

dbms=postgresql
host=localhost
port=5432
dbuser=postgres
dbpassword=1234
database=postgres
```

IMPROVEMENTS & FUTURE DEVELOPMENTS

To Do list

- Enhance component architecture design for further extensibility
- Implement Oracle and MSSQL DBMS support
- Develop proper expectation handling mechanism
- Develop data chancing module using ehcache
- Improve component performance

WEB ANALYTICS



WEB ANALYTICS

- Web analytics is measurement, collection, analysis and reporting of web data for purpose of understanding and optimizing web usage.
- Focus on the process of analyzing the behavior of visitors to a website and based on web log data mining.
- Main objective is to design and implement the web analytics.
- Developer may get the opportunity to use the existing web analytics library or the facility to develop an analytic engine by himself to analyze their classified web site statistically
- follows a listener architecture to develop the analytics.

COMPONENT DEMONSTRATION

SOLUTION

BENEFITS OF AMPLIAR FRAMEWORK

- Developer can easily use the core framework to develop the major functionalities, he doesn't have to develop from the scratch.
- Developer has the opportunity to choose his preference database vendor since ampliar framework supports multiple database vendors.
- Developer can easily plug a custom data store to the website.
- Developer can choose a different identity provider (apart from popular) for federated authentication.
- Developer can use the in built analytical engine to develop the analytics for the website.
- Reduce developer burden, complexity and knowledge gap during the development process.
- Reduce development time and cost of a classified base web development project.

THANK YOU!

Q & A