ENTERPRISE DATA

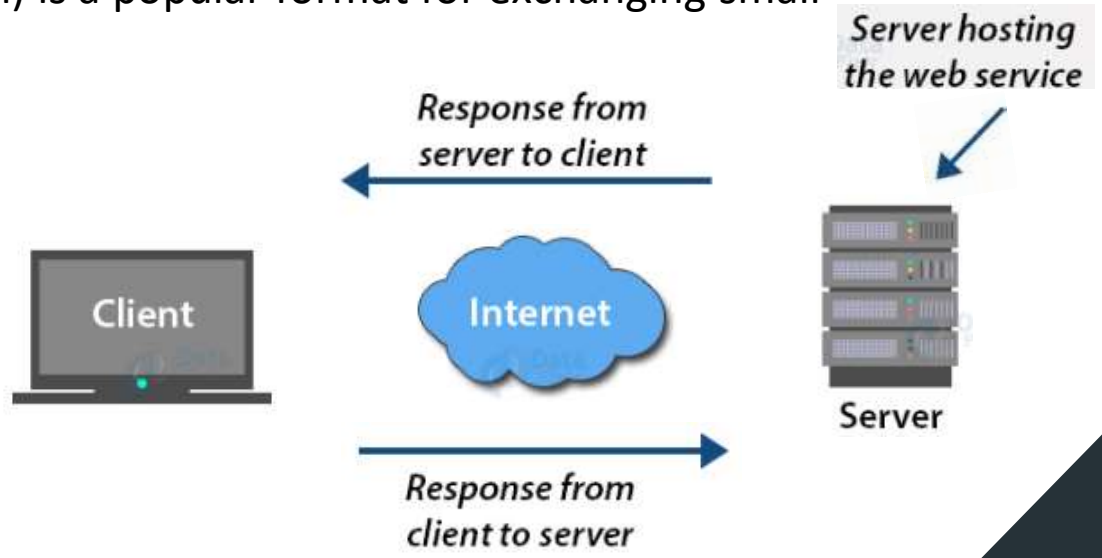
Course: **Mobile Application Development**

Unit : III – Building Blocks of Mobile Apps - II

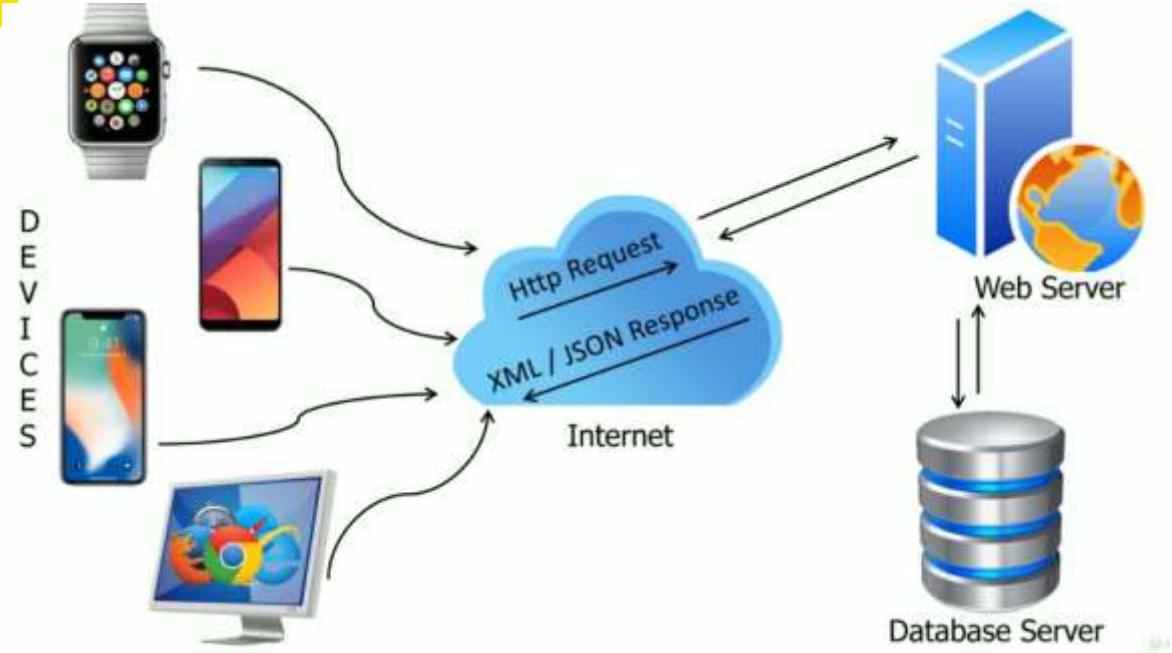
Class / Semester: II MCA / III Semester

WEB SERVICE

- Web service - standard for exchanging information between applications on network
- RESTful web services are light weight, highly scalable and maintainable
- JSON3 (JavaScript Object Notation) is a popular format for exchanging small chunks of data in key–value pairs



ILLUSTRATION



Name	Age
Ramkumar	Saran

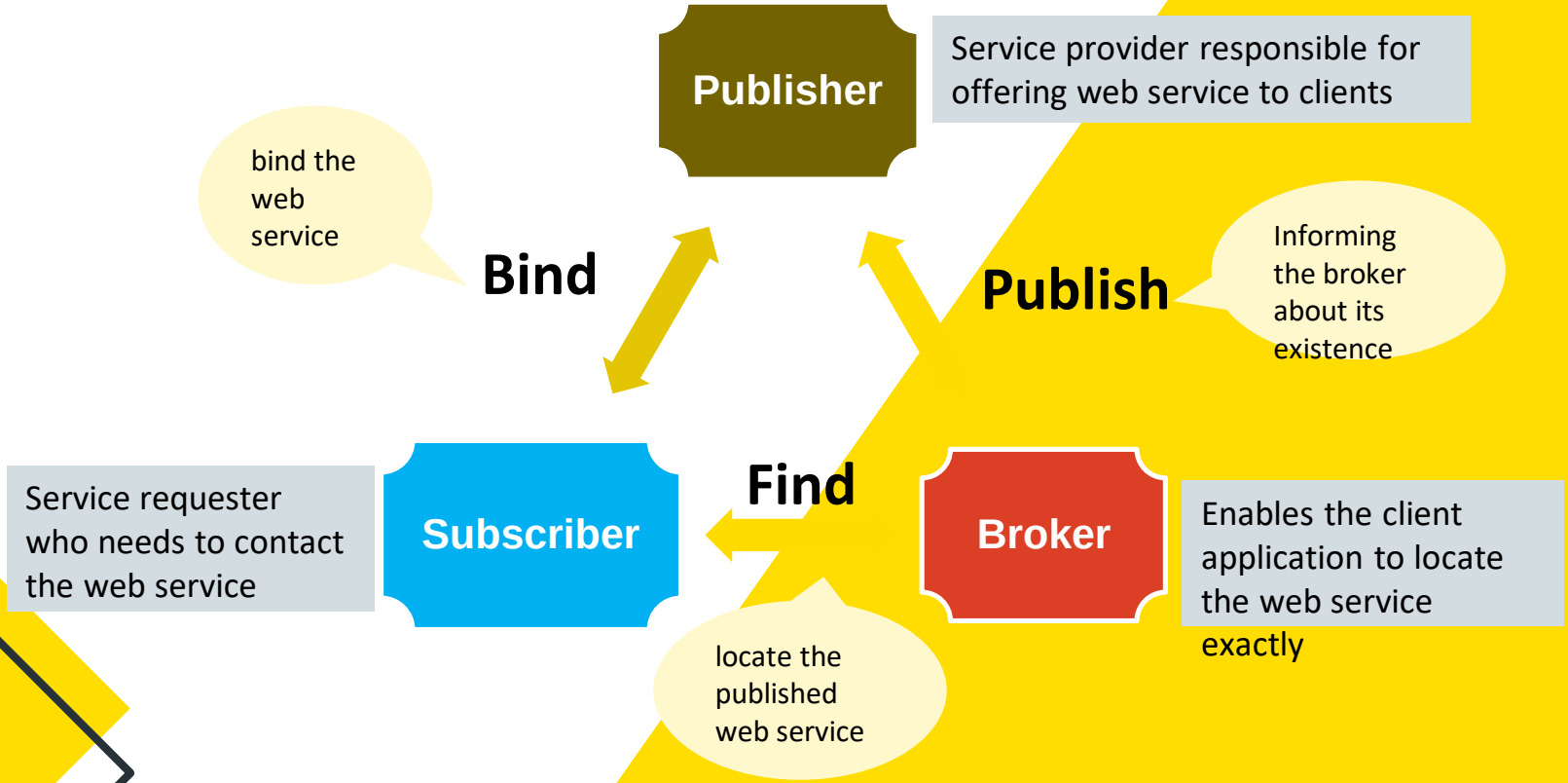
XML

```
<cname>
<firstname>Ramkumar</firstname
>
<age>23</age>
</cname>
```

JSON

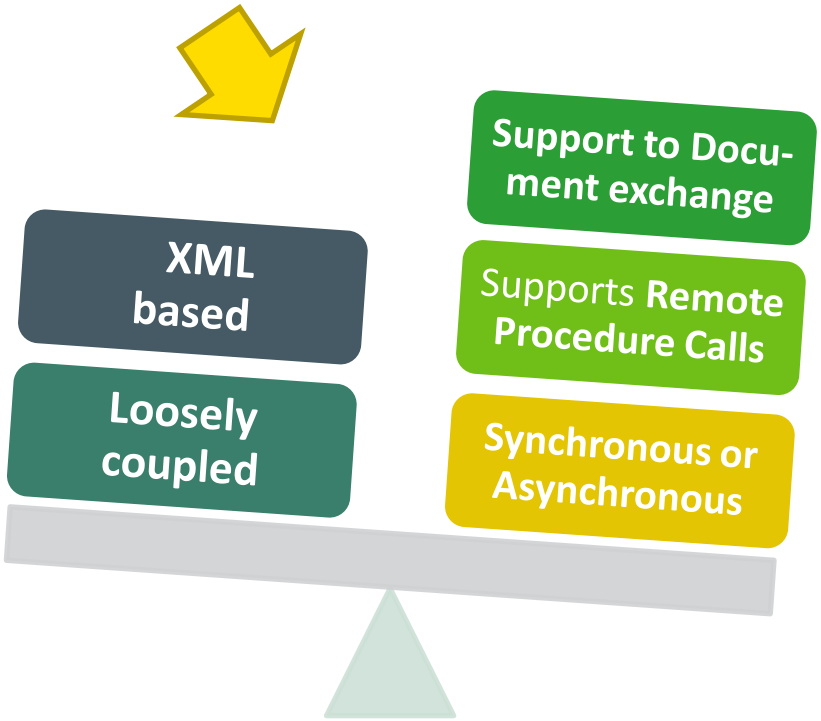
```
Name
{
(“firstname”:”Ramkumar”,
“age”:23)
}
```

Android Web Service Components



Web Service Components

characteristics



Types of Web Services

XML based protocol for the exchange of data between devices over internet

XML- RPC

UDDI (Universal Descriptive, discovery, and integration) is an standard for detailing, publishing and discovering new web services

UDDI

SOAP (Simple object access protocol) is an web service protocol for the exchange of data /docs over HTTP/ SMTP

SOAP

REST (Representational State Transfer) provides communication and connectivity between devices and the internet

REST

Advantages

Advantages

- interoperability among Applications
- Reusability
- faster communications
- use a quality industry-standard protocol for communication
- low-cost internet web services
- deployed over the standard internet technologies

Limitations

- Web services do not access from the browser
- don’t leverage emerging Web developments
- HTTP protocol used by web services is not reliable and is insecure

Enterprise Data Access

It refers a set of processes and activities focused on data accuracy, quality, security, availability, and good governance

It provides a layer of control for asset owners through a data management functionality to authenticate and authorize access to every business asset

Implementation

Data between the mobile app and the enterprise app can be exchanged in several formats

JSON3 (JavaScript Object Notation) is a popular format for exchanging small chunks of data in key–value pairs

Implementation

- To perform network operations in an application, we set permissions in manifest file

```
<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
```

- To check the network connectivity using user-defined function , before we proceed

```
private boolean checkNetworkAccess()
{
 ConnectivityManager connectivityManager = (ConnectivityManager)
getSystemService(CONNECTIVITY_SERVICE);
 NetworkInfo info = connectivityManager.getActiveNetworkInfo();
 if (info != null && info.isConnected())
 {  return true;
 } else {
  Toast.makeText(MainActivity.this, “No network access, network resource not accessible”,
Toast.LENGTH_SHORT).show();
  return false; } }
```

Implementation

- Once the network connectivity is determined, the app needs to initiate an HTTP request to exchange data with RESTful Web service
- HttpURLConnection is to initiate HTTP request which facilitates CRUD operations using PUT, GET, POST, and DELETE, HTTP methods

```
HttpURLConnection connection = null;
try {
URL url = new URL
("http://10.0.2.2:8080/ExpenseTracke/fetchExpenServlet");
 connection = (HttpURLConnection) url.openConnection();
 connection.setReadTimeout(2000);
 connection.setConnectTimeout(4000);
 connection.setRequestMethod("GET");
 connection.connect();
 int responseCode = connection.getResponseCode();
 if (responseCode == 200) {
   InputStream inputStream = connection.getInputStream();
  BufferedReader bufferedReader = new BufferedReader(
new InputStreamReader(inputStream));
  StringBuilder builder = new StringBuilder();
  String line;
  while ((line = bufferedReader.readLine()) != null)
{
        builder.append(line);
   } response = builder.toString();   }
```

Implementation

- Create a new project and go to activity_main.xml file, create List view
- Create another layout file list_row.xml and add the code

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:orientation="horizontal"
   android:padding="5dip">

   <!--TextView to display the name-->
   <TextView
      android:id="@+id/name"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:textSize="17dp"
      android:textStyle="bold" />

   <!--TextView to display the designation-->
   <TextView
      android:id="@+id/designation"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_below="@id/name"
      android:layout_marginTop="7dp"
      android:textColor="#343434"
      android:textSize="14dp" />

   <!--TextView to display the location-->
   <TextView
      android:id="@+id/location"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_alignBaseline="@+id/designation"
      android:layout_alignBottom="@+id/designation"
      android:layout_alignParentRight="true"
      android:textColor="#343434"
      android:textSize="14dp" />
</RelativeLayout>
```

REFERENCES

- Anubhav Pradhan, Anil V Deshpande, “Composing Mobile Apps using Android”, Wiley Edition, 2014
- https://www.tutorialspoint.com/android/android_application_components.htm
- https://www.javatpoint.com/android-core-building-blocks

Thank You