HOW TO CREATE SAP FIORI APP OFFLINE USING SMP

PART 1:

Step1: Pre-Requisites to Configure Fiori Apps

1.1: Install Java Development (JDK)
We need to install JDK 8 , or JDK 7.

1.2: Install Android SDK.

1.3: Install Node.js.

1.4: Install GIT.

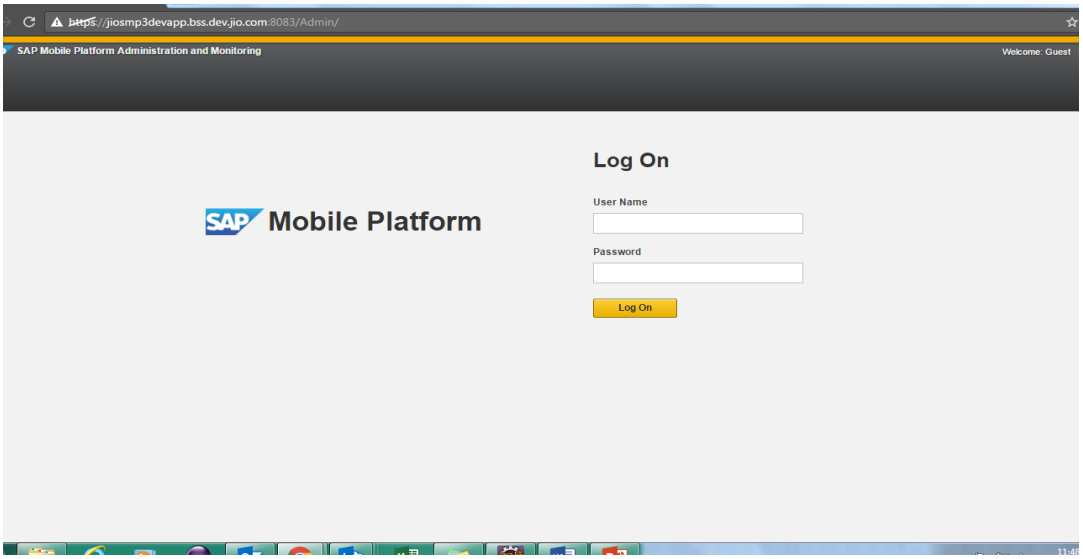
1.5: Set the Environment variable for above steps.

1.6: Install Apache Cordova using below command by CMD.

(**npm install –g cordova**)

Step2: Configure ODATA Service Url ON SMP

2.1: open SMP Management cockpit.
(https://jiosmp3devapp.bss.jio.com:8083/Admin)



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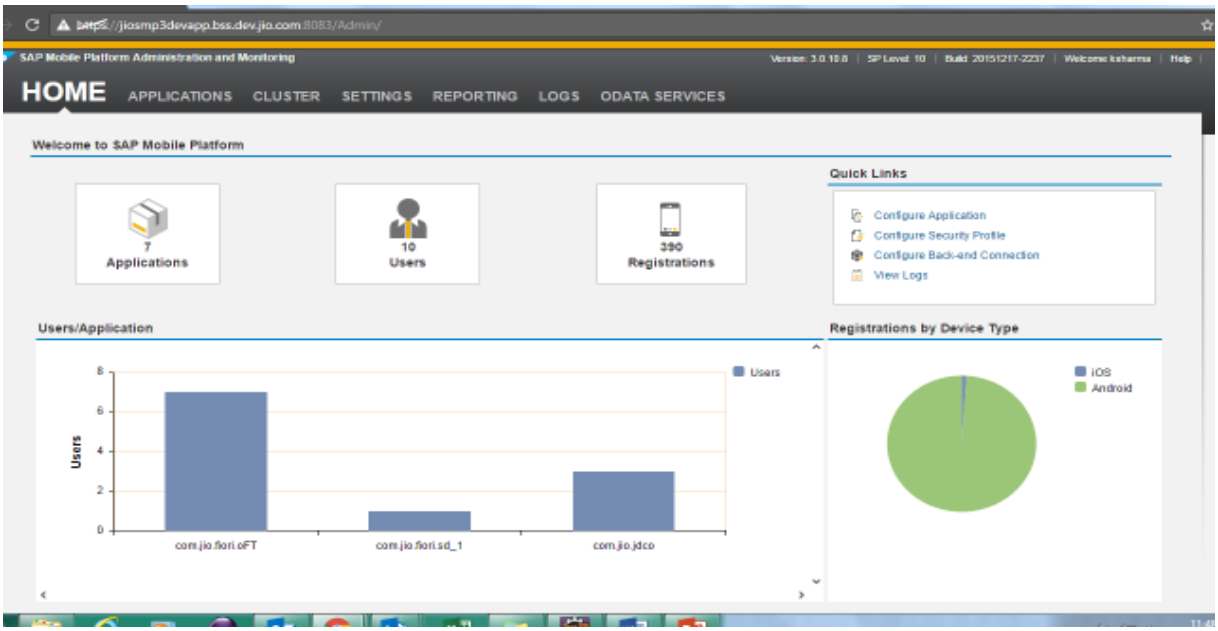
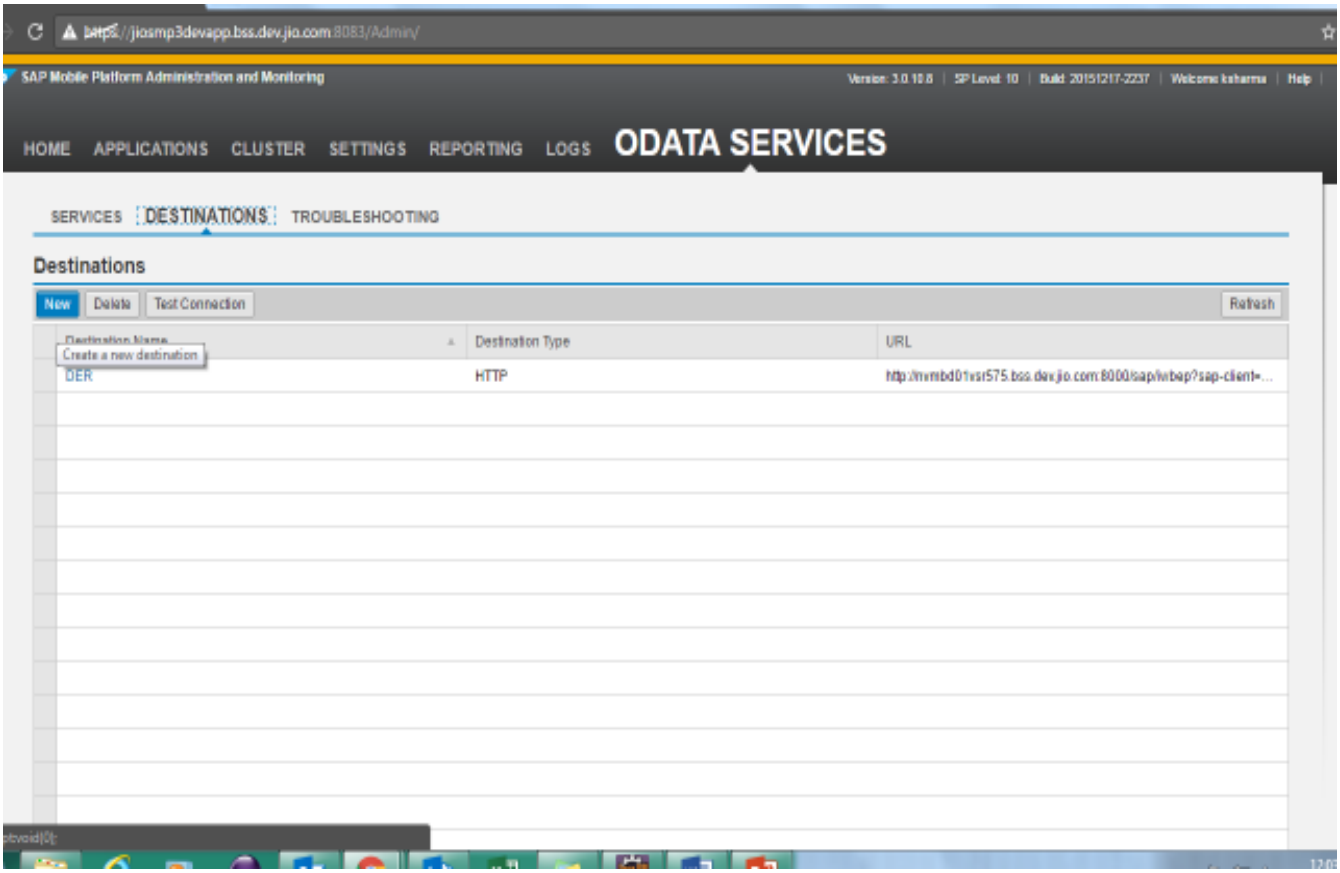


2.2: After Step2.1 go to **ODATA SERVICES>DESTINATIONS>**create new (If not exist).



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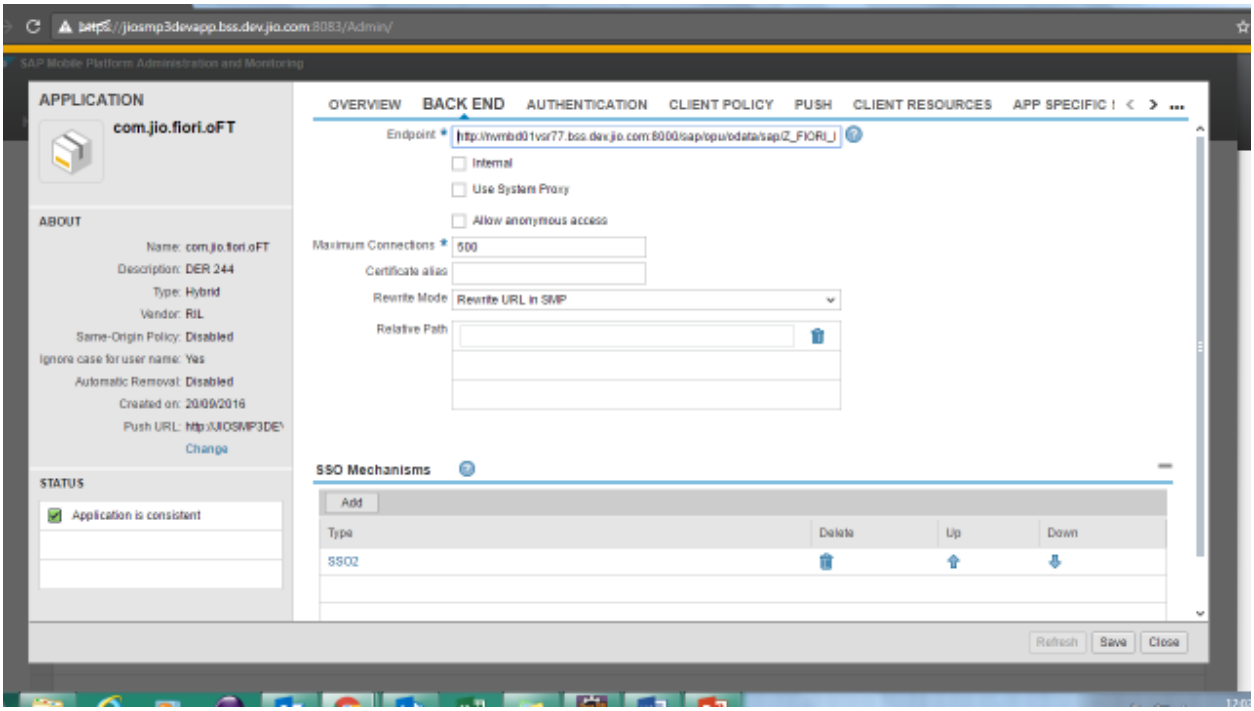
2.3: After creating Destinations one **App Id** will get generated. Then go to **App Id>BACK END** tab as per below screenshots fill the details.
As we can see in Endpoint we are entering OData service URL.



Step3: Creating Cordova based application.

3.1: Create the project.

Cordova create c:\Kapsel_Projects\FOSOffline com.jio.fiori.oFT FOSOffline

---

3.2: As per below slides Then go to created Cordova project.

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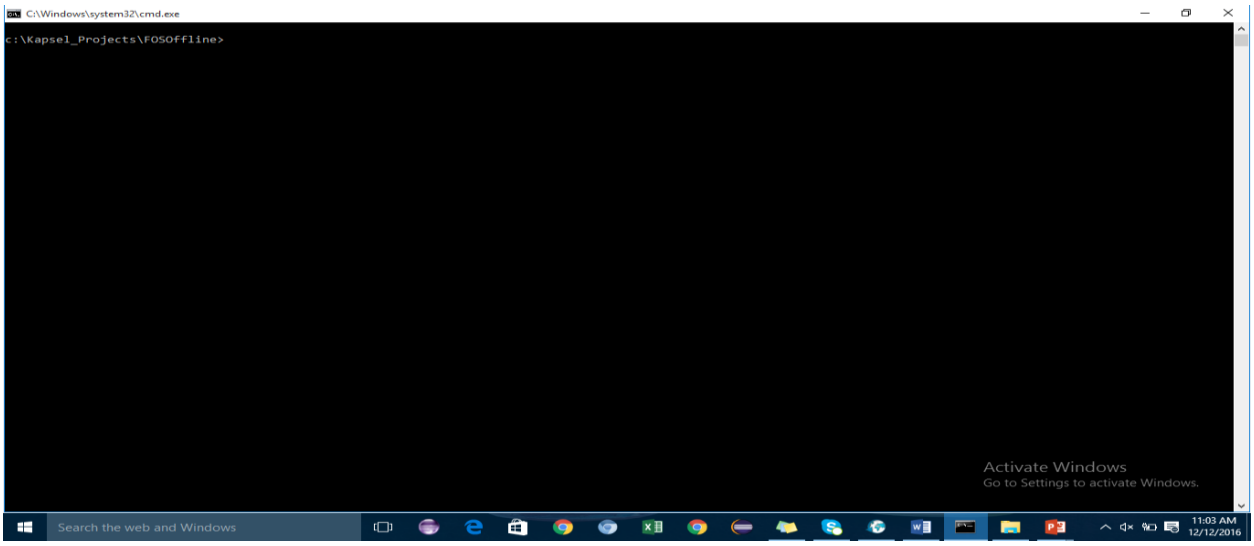
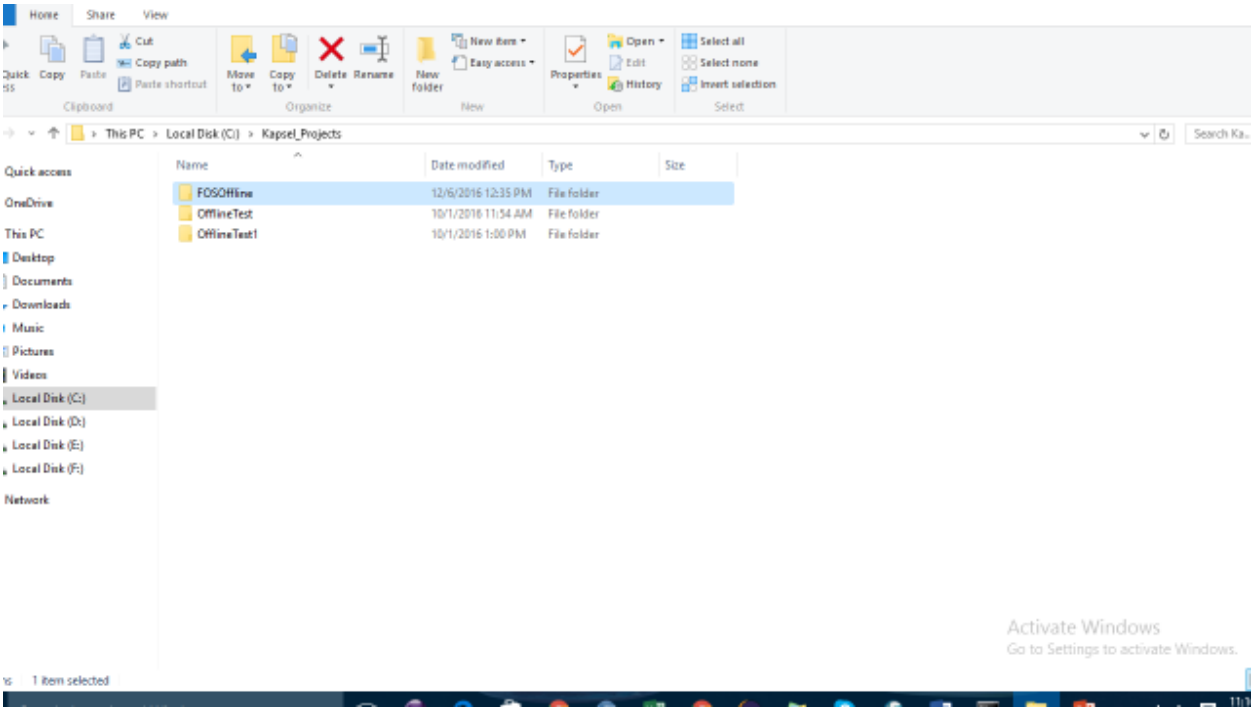


3.3: Add android platform by using below command.

```
Cordova platform add android
```

3.4: Replace *c:\Kapsel_Projects\FOSOffline\www\index.html* with the sample code.



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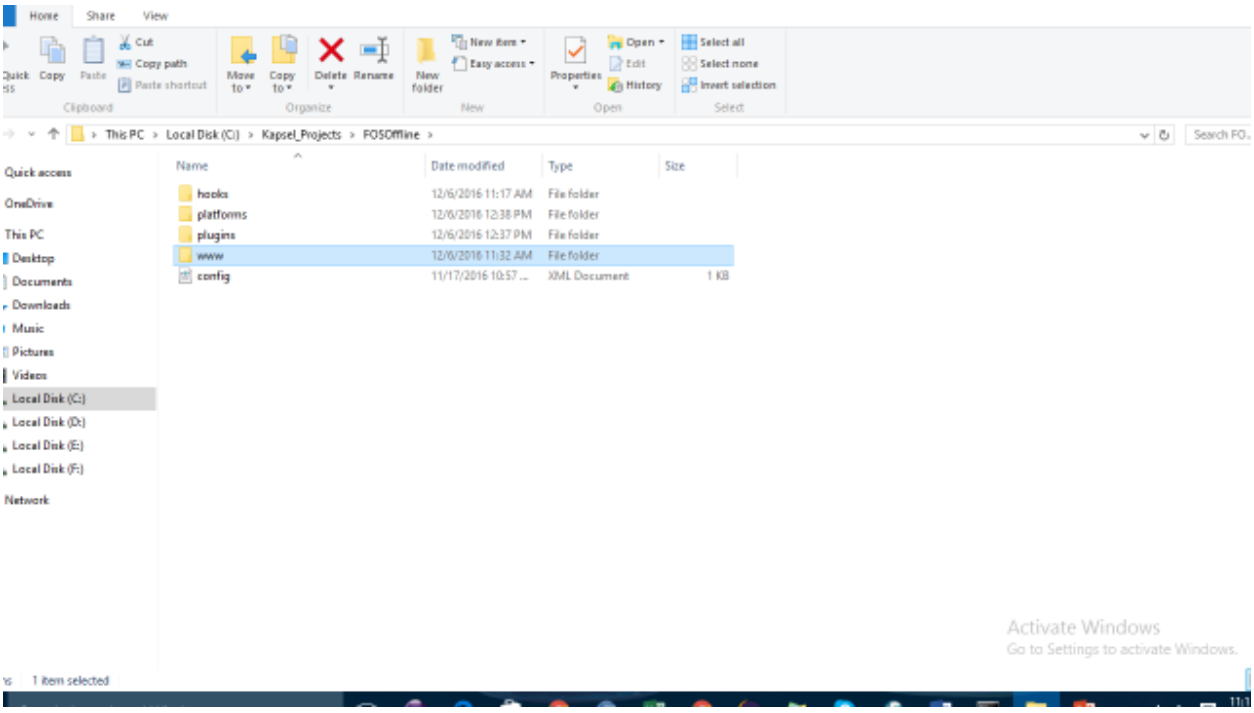

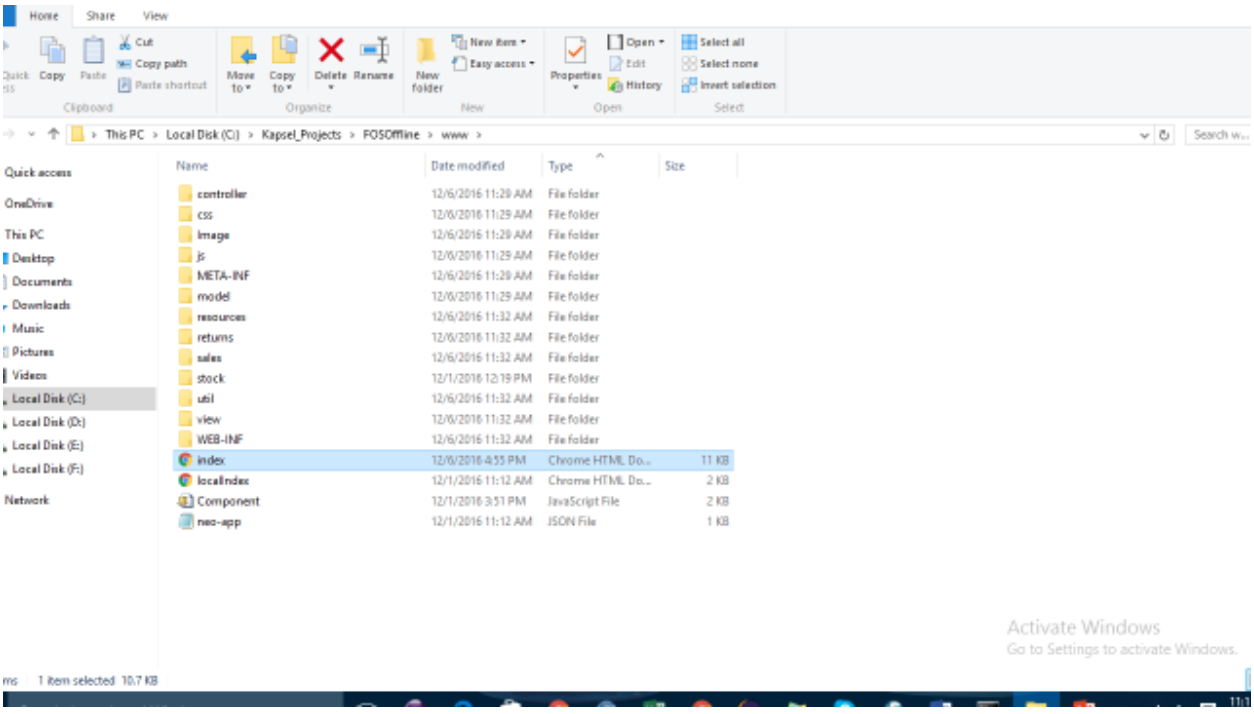

NOTE: We have modified the index.html as per our fiori application that we have developed in Eclipse.

For more details use below links:

https://blogs.sap.com/2015/07/19/getting-started-with-kapsel-part-10-offline-odata-sp09/

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```
<meta http-equiv="X-UA-Compatible" content="IE=edge" />
<meta http-equiv="Content-Type" content="text/html,charset=UTF-8" />
<meta name="viewport" content="width=device-width,initial-scale=1.0" />
<link rel="icon" type="image/png" href="image/sapUiGlobalLogo.png">
<title>FOS Applications</title>
<link rel="stylesheet" type="style/css" href="css/style.css" />
<script id="sap-ui-bootstrap"
                        src="resources/sap-ui-core.js"
                        data-sap-ui-libs="sap.m" data-sap-ui-theme="sap_bluecrystal"
                        data-sap-ui-xx-bindingSyntax="complex" data-sap-ui-compatVersion="1.16"
                        data-sap-ui-resourceroots='{"FOSDetails": "./"}'>
</script>
<script type="text/javascript" charset="utf-8" src="cordova.js"></script>
<script type="text/javascript">
var Dashboard={util:{FosId:"8757"}};
var appId = "com.jio.fiori.oFT"; // Change this to app id on server
                        applicationContext = null;
                        smpServerProtocol = "http";
                        smpServerHost = "jiosmp3devapp.bss.dev.jio.com";
                        smpServerPort = "8080";
                        authStr = "";
                       store = null; //Offline OData store
                        startTime = null;
                        online = navigator.onLine;
                                //alert("Variables declared");
```

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```
                        // Optional initial connection context
                        context = {
                            "serverHost": smpServerHost, //Place your SMP 3.0 server name here
                            "https": smpServerProtocol == "https",
                            "serverPort": smpServerPort,
                            "user": "A00660090035",      //user name for registration and the OData
Endpoint
                            "password": "Welcome.1",   //password for registration and the OData
Endpoint
                                                    //once set can be changed by calling
sap.Logon.changePassword()
                            "communicatorId": "REST",
                            "passcode": "password",  //note hardcoding passwords and unlock passcodes
are strictly for ease of use during development
                                                    //once set can be changed by calling
sap.Logon.managePasscode()
                            "unlockPasscode": "password",
                            "passcode_CONFIRM":"password",
                            "ssoPasscode":"Password1"
                        };
                        window.onerror = onError;
                        function onError(msg, url, line) {
                           var idx = url.lastIndexOf("/");
                           var file = "unknown";
                           if (idx > -1) {
                              file = url.substring(idx + 1);
                           }
                           alert("An error occurred in " + file + " (at line # " + line + "): " + msg);
                           return false; //suppressErrorAlert;
                        }
```

```
                alert("Init method declared");
                function init() {
                        alert("Init Method");
                                $(window).bind("online", applicationBackOnline);
  $(window).bind("offline", applicationOffline);
                  if (sap.Logger) {
                                // alert("sap logger method");
                    sap.Logger.setLogLevel(sap.Logger.DEBUG);  //enables the display of debug log messages from the Kapsel plugins.
                    sap.Logger.debug("Log level set to DEBUG");
                  }
                  register()
                  console.log("init completed");
                }
                function register() {
                  updateStatus2("register called");
                                if((typeof sap !== "undefined") && (sap.Logon !== undefined)){
                                        sap.Logon.init(logonSuccessCallback, logonErrorCallback, appId, context);
                                }
                                else{
                                        alert("sap.Logon not defined");
                                }
                }
                function logonSuccessCallback(result) {
                        clearTimeout(myVar);
                  console.log("logonSuccessCallback " + JSON.stringify(result));
                  updateStatus2("Successfully REGISTERED");
                  applicationContext = result;
```

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```
                                        //alternatively the authproxy and logon plugincan provide this
if SAPKapselHandleHttpRequests=true, (it is by default on iOS)
                                        authStr = "Basic " +
btoa(applicationContext.registrationContext.user + ":" +
applicationContext.registrationContext.password);
                                        opnstore();
                                        sap.ui.getCore().attachInit(function() {
                                                //alert("Shell Loading...");
                                                new sap.m.Shell({
                                                        app: new
sap.ui.core.ComponentContainer({
                                                                height : "100%",
                                                                name : "FOSDetails"
                                                        })
                                                }).placeAt("content");

                                        });
                        }



opnstore=function(){
                                alert("openStore function");
    startTime = new Date();
    updateStatus2("store.open called");
    var properties = {
      "name": "FOSOfflineStore",
      "host": applicationContext.registrationContext.serverHost,
     "port": applicationContext.registrationContext.serverPort,
      "https": applicationContext.registrationContext.https,
```

```
                                    //"serviceRoot" : applicationContext.applicationEndpointURL,
                                    "serviceRoot" : "com.jio.fiori.oFT",
                                    "streamParams":"custom_header=Authorization:" + authStr + ";",
        "definingRequests" : {
          "RetailListSet" : "/RetailListSet?$filter=FosId eq '8757'",
                                            //"DetailsSet":"/DetailsSet?$filter=OrderNum eq '7332' and
FosId eq '8757'",
          // "PushScanSet" : "/PushScanSet",
                                            //"PaymentSet":"/PaymentSet",
                                            "SerialNumScanSet" : "/SerialNumScanSet",
                                             "DummyCreateSet"   : "/DummyCreateSet"
                                            //"ProductCatListSet":"/ProductCatListSet",
           //"StockDispHdrSet" :
"/StockDispHdrSet(FosId='8757',PrdctCtgryName='SIM')?$expand=STCKDISHDRITMNAV",


          //
"RetRecHdrSet":"/RetRecHdrSet(RetailerId='')?$expand=RETRECHDRITMNAV/RETRECITMSERNAV"


        }
      };
      //"SerialNumScanSet" : "/SerialNumScanSet",
      // "DispatchHdrSet" : "/DispatchHdrSet?$expand=",
       //     "PushOrdHdrSet":"/PushOrdHdrSet?$expand=",
        //    "RetRecHdrSet":"/RetRecHdrSet"
      //"OrderHdrSet":"/OrderHdrSet(RetailerId='660090094',FosId='8757',FromDate=datetime'0000-00-
00T00:00:00',ToDate=datetime'0000-00-00T00:00:00')?$expand=ORDHDRITMNAV",
                                // "DispatchHdrSet" : "/DispatchHdrSet",
                                //"PushOrdHdrSet":"/PushOrdHdrSet",
```

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```
                        //"RetRecHdrSet":"/RetRecHdrSet?$expand=RETRECHDRITMNAV/RETRECITMSERNAV"
     // "ValidationSet":"/FOSValidSet(ArdId='A00660090035',FosLogon='068001234')",
      store=sap.OData.createOfflineStore(properties);
      store.open(openStoreSuccessCallback, errorCallback);
                        };

                        openStoreSuccessCallback=function(){
                            alert("openStore SuccessCallback function");
     var endTime = new Date();
      var duration = (endTime - startTime)/1000;
      alert("Store opened in  " + duration + " seconds");
      alert("Store is OPEN.");
                        if(!navigator.onLine){
                        sap.OData.applyHttpClient();
                        alert("applied http client")
                        }
                            else{
sap.OData.removeHttpClient();
}



                        };
                        applicationBackOnline=function(){

                            sap.OData.removeHttpClient();
      alert("applied http client false")
     /* store.flush(function(){
```

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```
        debugger;
        //updated copy with alerts
        store.refresh(function(){

        },function(){

        });
    },function(){
        debugger;
        // this is in error function
    })*/
                        };


                        applicationOffline=function(){

                            sap.OData.applyHttpClient();
        alert("applied http client true");
                            //opnstore();


                        };


                            function logonErrorCallback(error) {   //this method is called if the user cancels
the registration.
                              alert("logonErrorCallback method");
                               console.log("An error occurred:  " + JSON.stringify(error));
                               if (device.platform == "Android") {  //Not supported on iOS
```

```
                navigator.app.exitApp();
            }
        }
        function unRegister() {
         alert("unregister method");
            updateStatus2("unregister called");
            sap.Logon.core.deleteRegistration(logonUnregisterSuccessCallback,
errorCallback);
            clearTable();
        }
        function logonUnregisterSuccessCallback(result) {
                alert("logonUnregisterSuccessCallback method");
            updateStatus2("Successfully UNREGISTERED");
            console.log("logonUnregisterSuccessCallback " + JSON.stringify(result));
            applicationContext = null;
        }
        function errorCallback(e) {
            alert("An error occurred " + JSON.stringify(e));
            console.log("An error occurred " + JSON.stringify(e));
         //  updateStatus1("");
        }
                /*   function updateStatus1(msg) {
    document.getElementById('statusID').innerHTML = msg + " " + getDeviceStatusString();
    console.log(msg + " " + getDeviceStatusString());
  } */

  function updateStatus2(msg) {
    var d = new Date();
            }
```

```
function read() {
                        alert("read mehtod");
  updateStatus2("read request started");
  startTime = new Date();
  //clearTable();
  if (!haveAppId()) {
    return;
  }
  var sURL = applicationContext.applicationEndpointURL + "/ProductCatListSet";
                        alert(sURL);
  var oHeaders = {};
  oHeaders['Authorization'] = authStr;
  //oHeaders['X-SMP-APPCID'] = applicationContext.applicationConnectionId;    //this header is
provided by the logon plugin


 request = {
    headers : oHeaders,
    requestUri : sURL,
    method : "GET"
  };
  console.log("read using " + sURL);
  OData.read(request, readSuccessCallback, errorCallback);
                        alert("odata read method");
}


                        function readSuccessCallback(data, response) {
                        alert("readSuccessCallback method");
var endTime = new Date();
var duration = (endTime - startTime)/1000;
```

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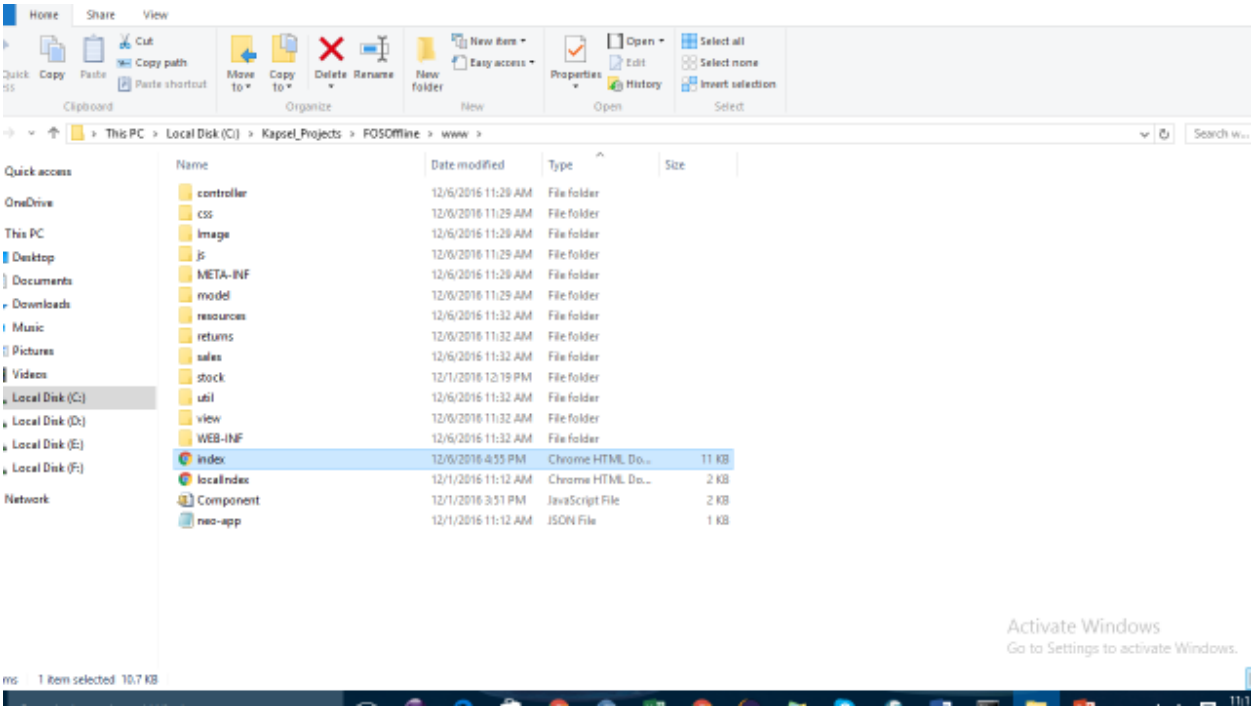
```
    alert("Read " + data.results.length + " records in " + duration + " seconds");


  }


    function clearTable() {
       var productsTable = document.getElementById("ProductsTable");
       while(productsTable.rows.length > 1) {
          productsTable.deleteRow(1);
       }
    }


    function haveAppId() {
                          alert("haveAppId method");
       if (!applicationContext) {
          alert("Please register with the SMP Server before proceeding");
          return false;
       }
       return true;
       }



</script>
</head>
<body class="sapUiBody" id="content" onload="myVar=setTimeout(init, 1500)">
</body>
</html>
```

3.5: After completing step 3.4 we will copy our application folder inside www folder.

C:\Kapsel_Projects\FOSOffline\www



3.6: Add the Cordova network information plugin and the Kapsel Offline OData plugin by using below commands into the Cordova created project.

C:\Kapsel_Projects\FOSOffline

Cordova plugin add cordova-plugin-network-information

Cordova plugin add kaspel-plugin-odata –searchpath %KAPSEL_HOME%/plugins

Cordova plugin add kapsel-plugin-logon –searchpath %KAPSEL_HOME%/plugins

3.7: Modify the variable **smpServerHost** in index.html with your **smpServerHost** Name.

3.8: Prepare, build and deploy the app with the following command.

Cordova –d prepare

Cordova build android

NOTE: The above steps are used for Registering and creating simple offline app.

PART 2: Offline enabled App with **Read, Create, Update and Delete.**

Now we will see step by step procedure to **Read** in Offline as well as in online mode.

Suppose we are using **FOS Apps** in which we will see all **READ** and **CREATE** operation.

How to perform READ operation in FIORI Apps Offline as well as in Online using SMP?

STEP1: We have copied all FOS apps in www folder.

C:\Kapsel_Projects\FOSOffline\www

STEP2: As we can see we have changed the smpServerHost name and appId in index.html.

STEP3: Once the page loads, init() call inside init we are calling register() method which is used for validation.

In function init(){

```
$(window).bind("online", applicationBackOnline);
 $(window).bind("offline", applicationOffline);
};
```

STEP4: Once the registration done then in logonSuccessCallback() we are calling openstore().

STEP5: As we can see in openstore() we have defined object with different properties and values.

```
opnstore=function() {
    startTime = new Date();
    updateStatus2("store.open called");
    var properties = {
      "name": "FOSOfflineStore",
      "host": applicationContext.registrationContext.serverHost,
     "port": applicationContext.registrationContext.serverPort,
      "https": applicationContext.registrationContext.https,
   "serviceRoot" : "com.jio.fiori.oFT",
  "streamParams":"custom_header=Authorization:" + authStr + ";",
      "definingRequests" : {
        "RetailListSet" : "/RetailListSet?$filter=FosId eq '8757'",
         //"PaymentSet":"/PaymentSet",
         "SerialNumScanSet" : "/SerialNumScanSet",
        "DummyCreateSet"   : "/DummyCreateSet"
      }
    };
    store=sap.OData.createOfflineStore(properties);//used for creating OfflineStore.
    store.open(openStoreSuccessCallback, errorCallback); //used for opening  the store.
          };
openStoreSuccessCallback=function() {
     var endTime = new Date();
    var duration = (endTime - startTime)/1000;
    alert("Store opened in  " + duration + " seconds");
```

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```
    alert("Store is OPEN.");
        if(!navigator.onLine){
sap.OData.applyHttpClient();//Replaces the OData defaultHTTPClient with a custom one that uses the SMP
//OData native APIs.
        alert("applied http client")
        }
                else{
sap.OData.removeHttpClient();//Removes the custom httpClient if it has been applied.
}


//If Device is Online.
applicationBackOnline=function() {
 sap.OData.removeHttpClient();
    alert("applied http client false")
        };


//If Device is Offline.
applicationOffline=function() {
        sap.OData.applyHttpClient();
        alert("applied http client true");
        };
```

NOTE: In defineRequests we define entitySets which is helpful for opening the openStore.

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DefineRequests: whatever entityset we define we can fetch it directly even online as well as in offline.

InOnline: Using SMP we can perform all operation like Gateway in online. There is no limitation in it.

InOffline: Using SMP we can perform all operations but there is some limitations in OData.

Offline OData Version Support and Limitations

OData version 2 is supported for the offline OData feature, with several exceptions.

There is no support for these OData concepts:

- Function imports.
- ETags when using the if-match/if-none-match headers when performing LOCAL reads.
- Modifying properties or complex type properties by addressing them in the URL.
- Metadata annotations are not populated in the Metadata object.
- Modifying entity relationships through entity bindings in entities.

The Offline OData feature has the following limitations:

- The maximum length (MaxLength) of Edm.String key properties is 512 characters.
- The maximum length (MaxLength) of Edm.Binary key properties is 1536 bytes.
- The Android offline store does not support mutual authentication using X509Certificates loaded from the System KeyStore/KeyChain. It does support X509Certificates which are provided from a secure file store. The secure file store may be an SAP component, or 3rd party component, so long as the X509Certificate is supplied to the X509KeyManager when required.
- The navigation property used for the deep insert must refer to at most one entity.
- Media resources can not be read, created or updated in a batch request.
- The Offline OData SDK for Windows does not support using client certificates to perform mutual authentication with the server.

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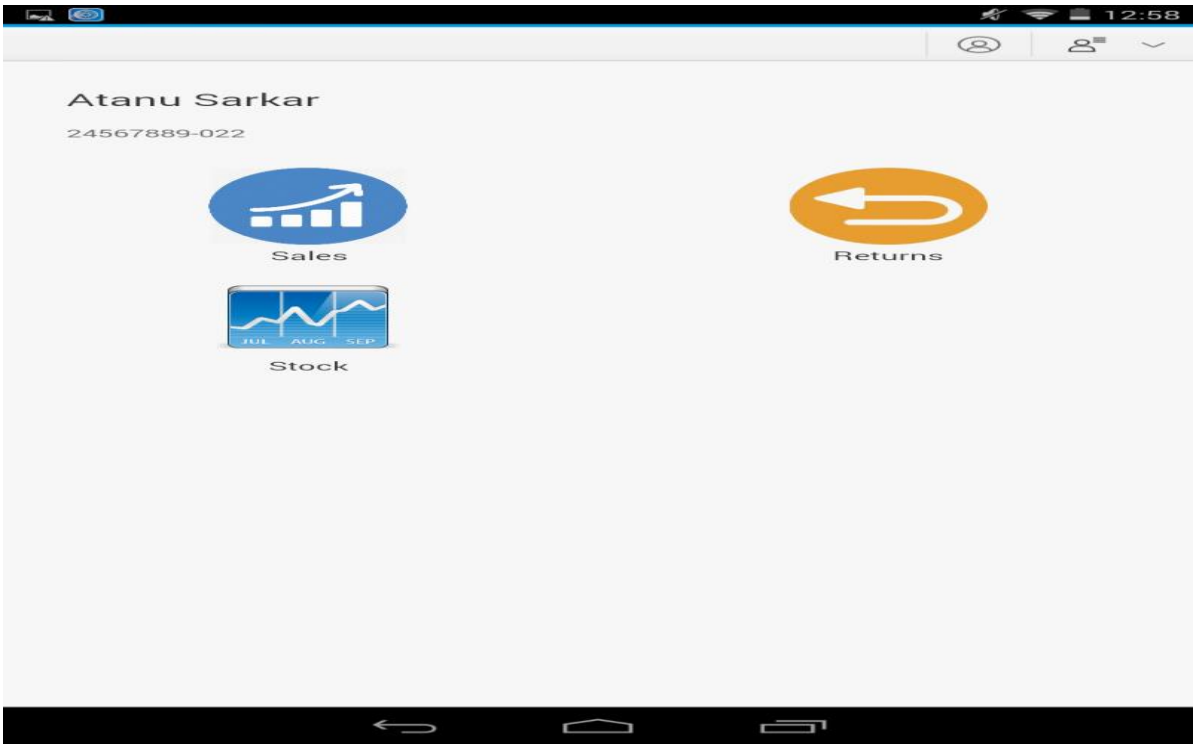
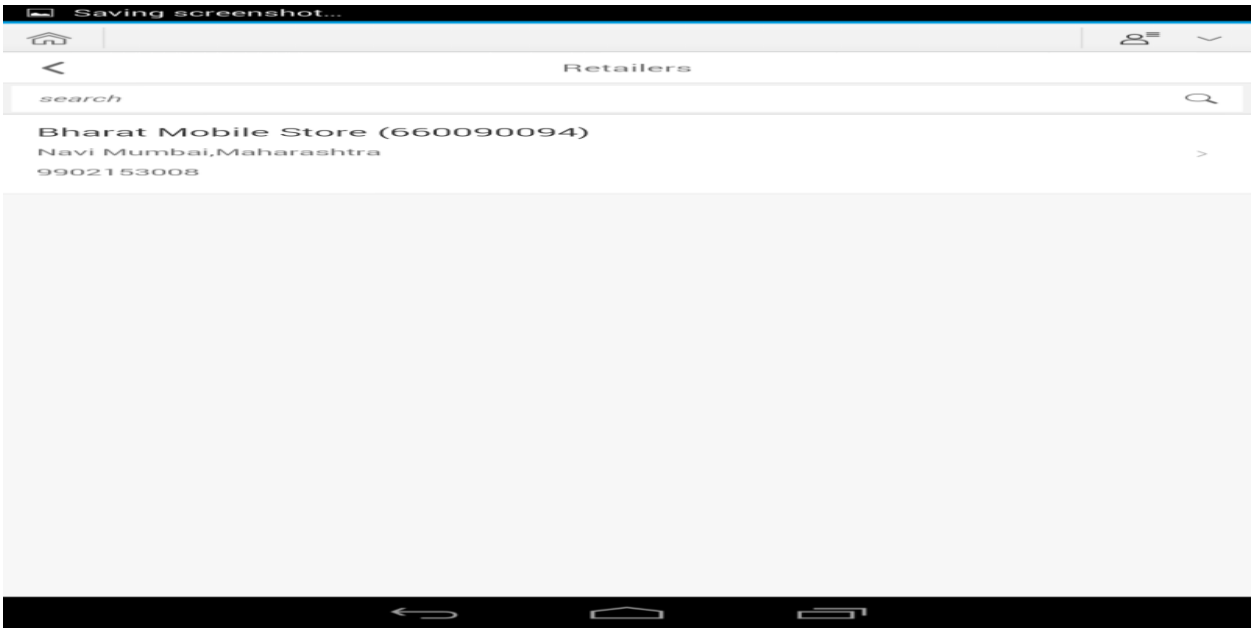
STEP6: Once the store gets open sapui5 page loads.





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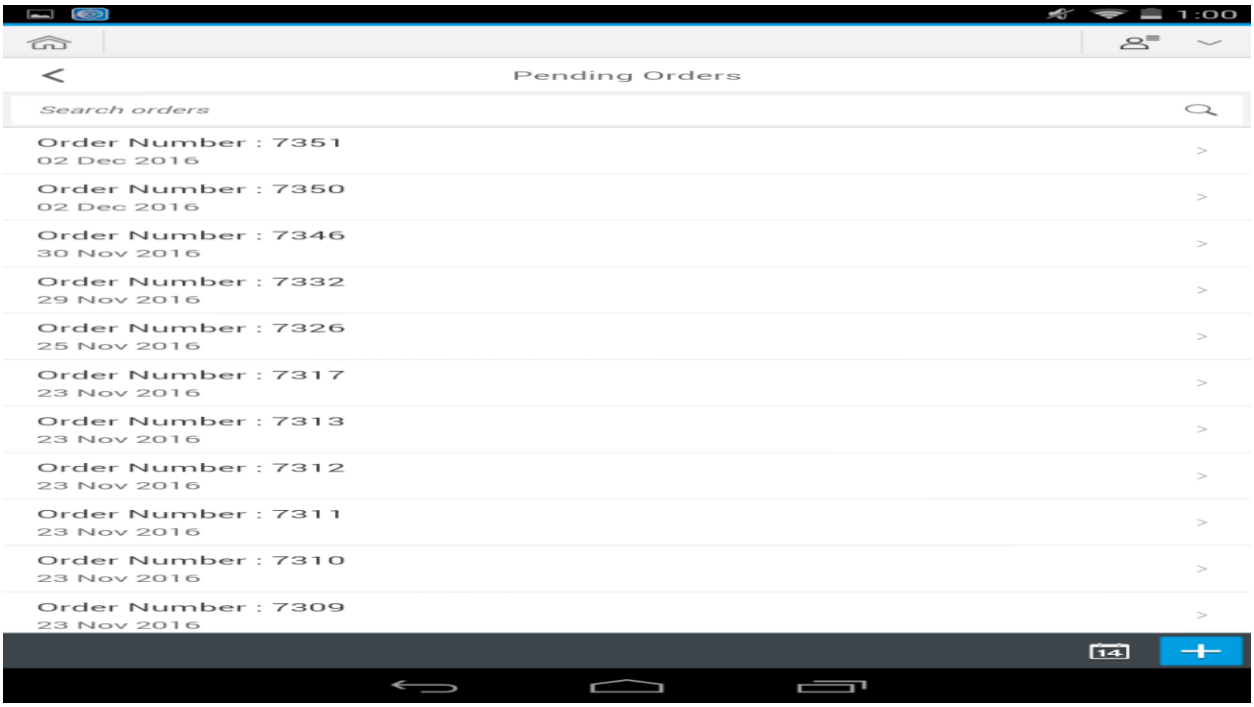

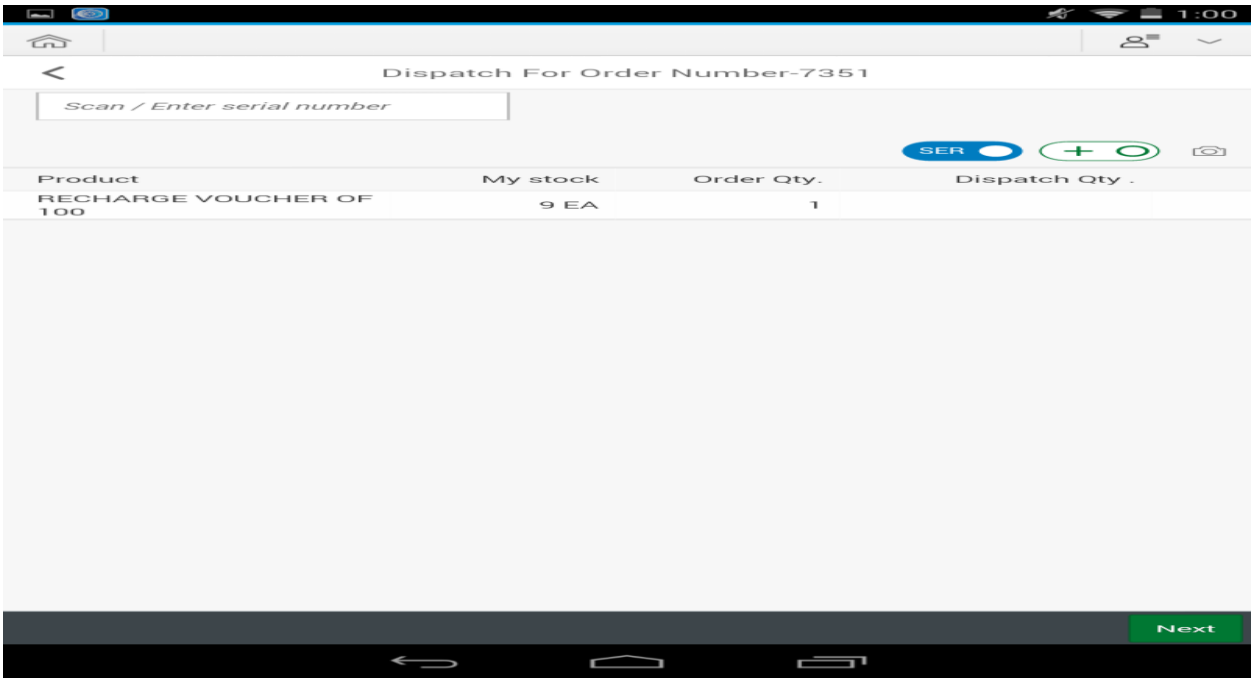

As we can see we have scanned serial number then dispatch qty becomes one(1).

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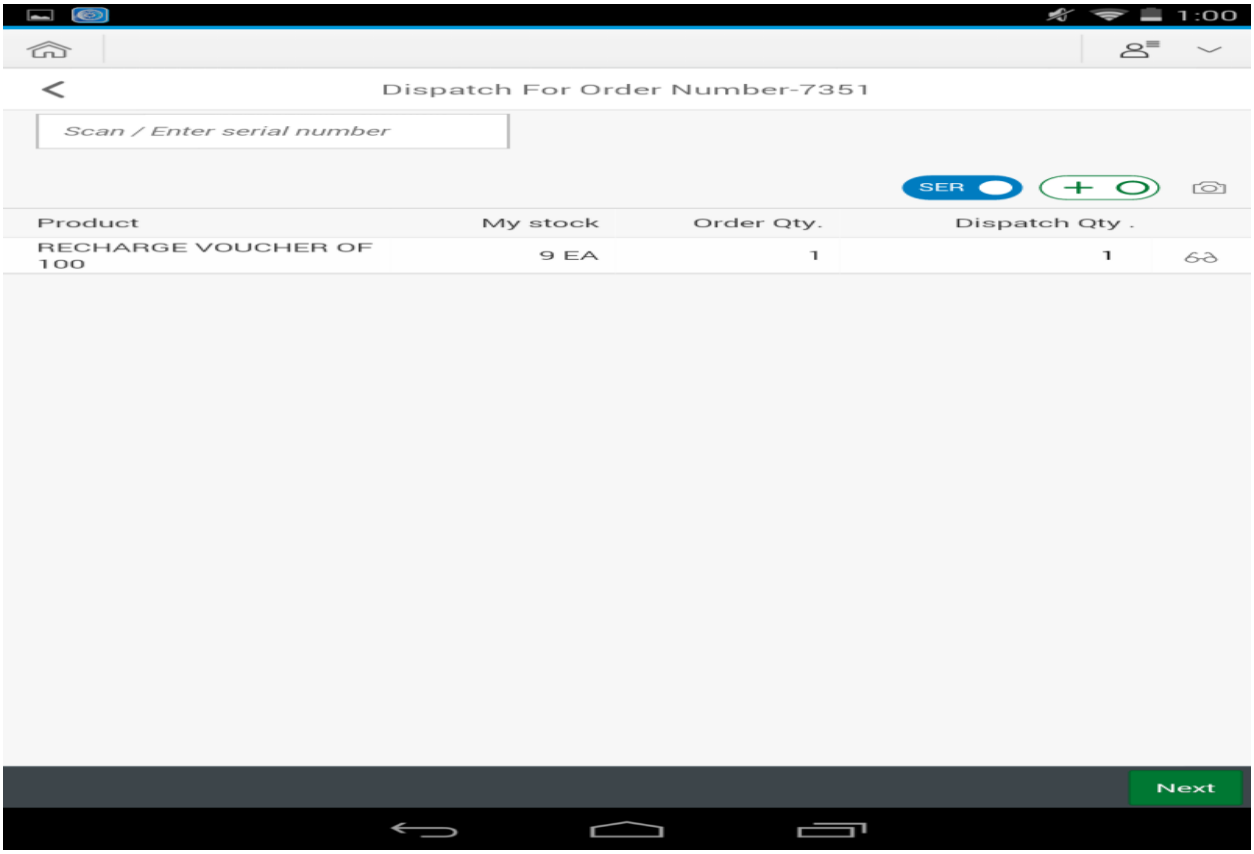

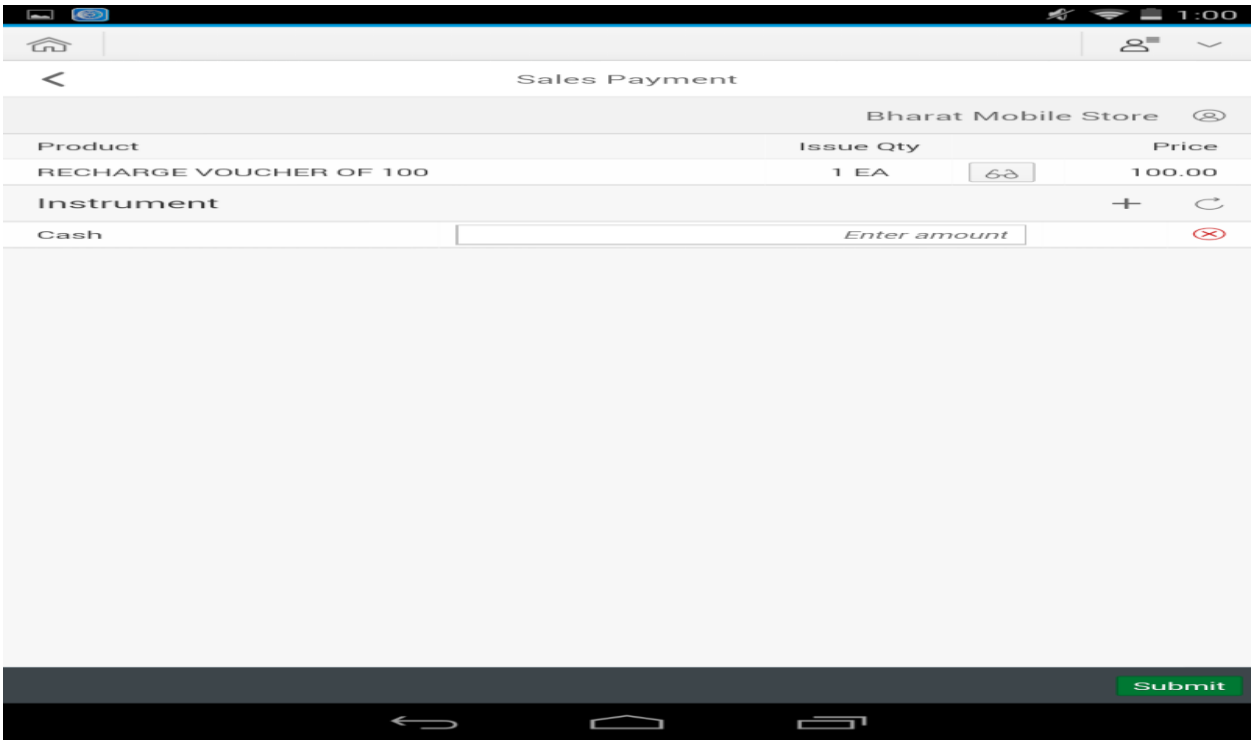

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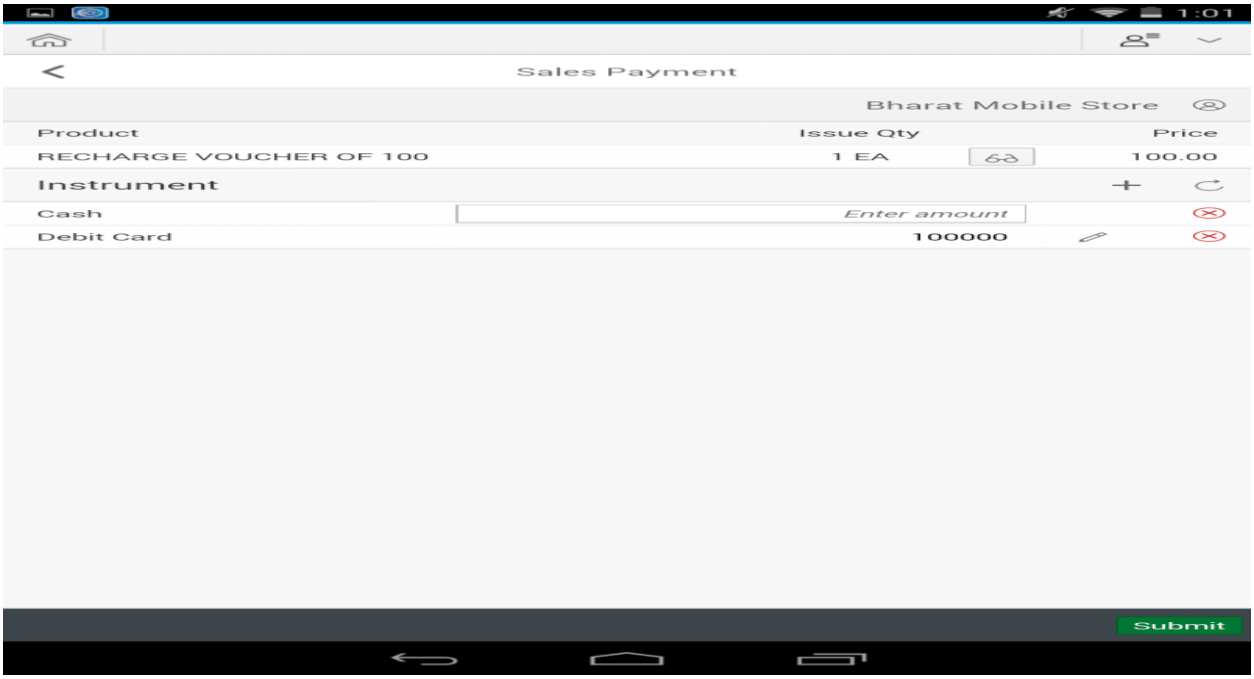

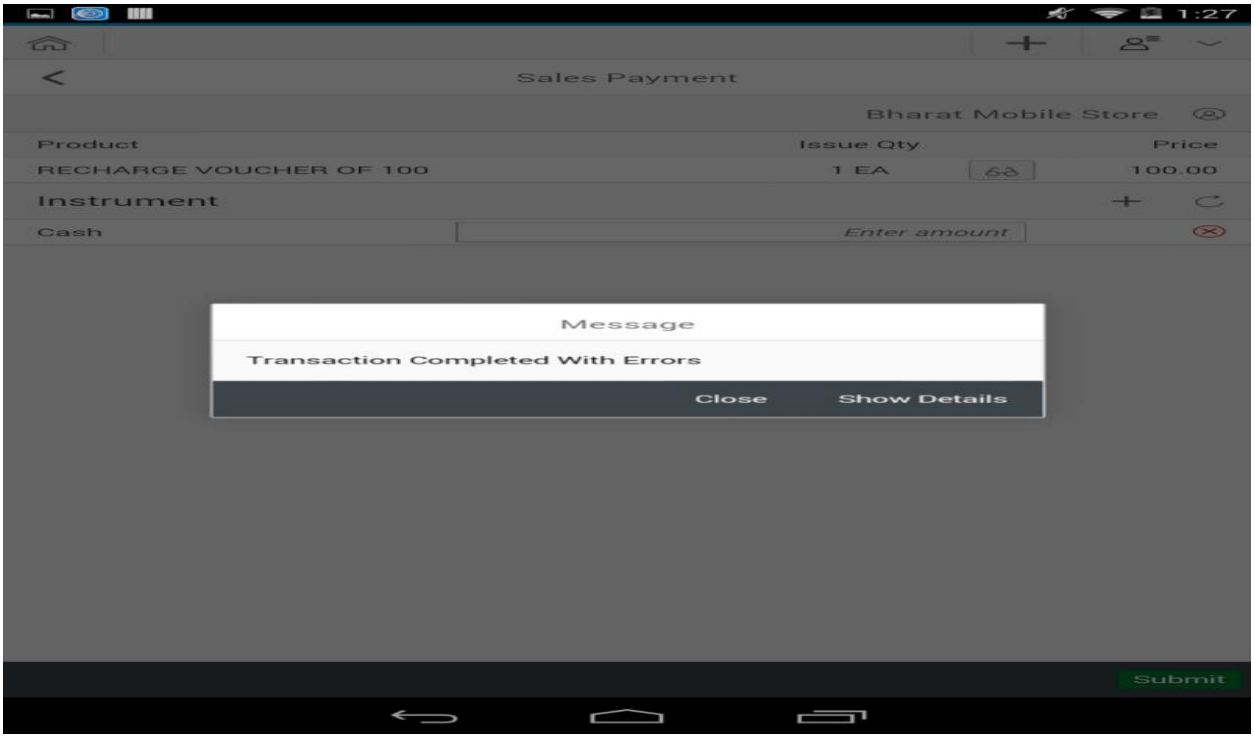

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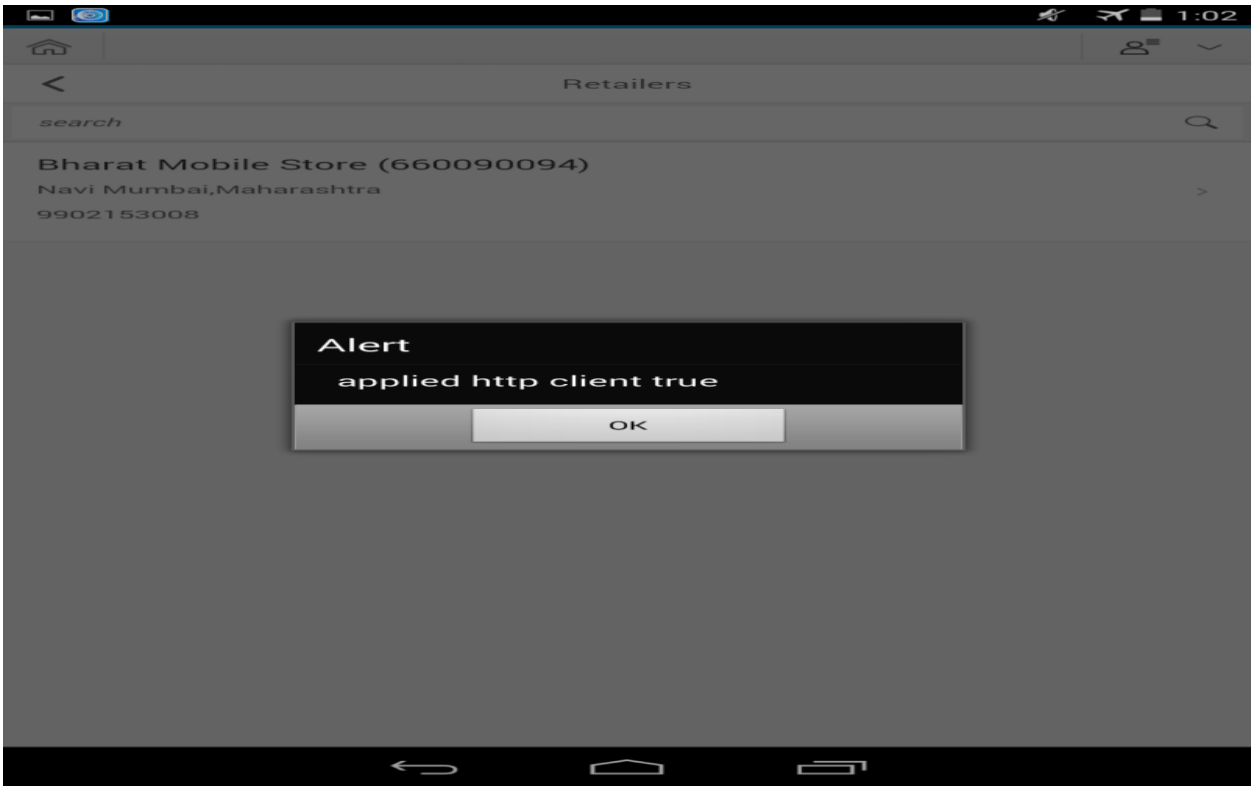
STEP7: Now we are in Airplane mode (Offline).Then below function called.

```
//If Device is Offline.

applicationOffline=function() {

        sap.OData.applyHttpClient();

        alert("applied http client true");

            };
```

STEP8: Below are the screenshots in offline mode for the same application.



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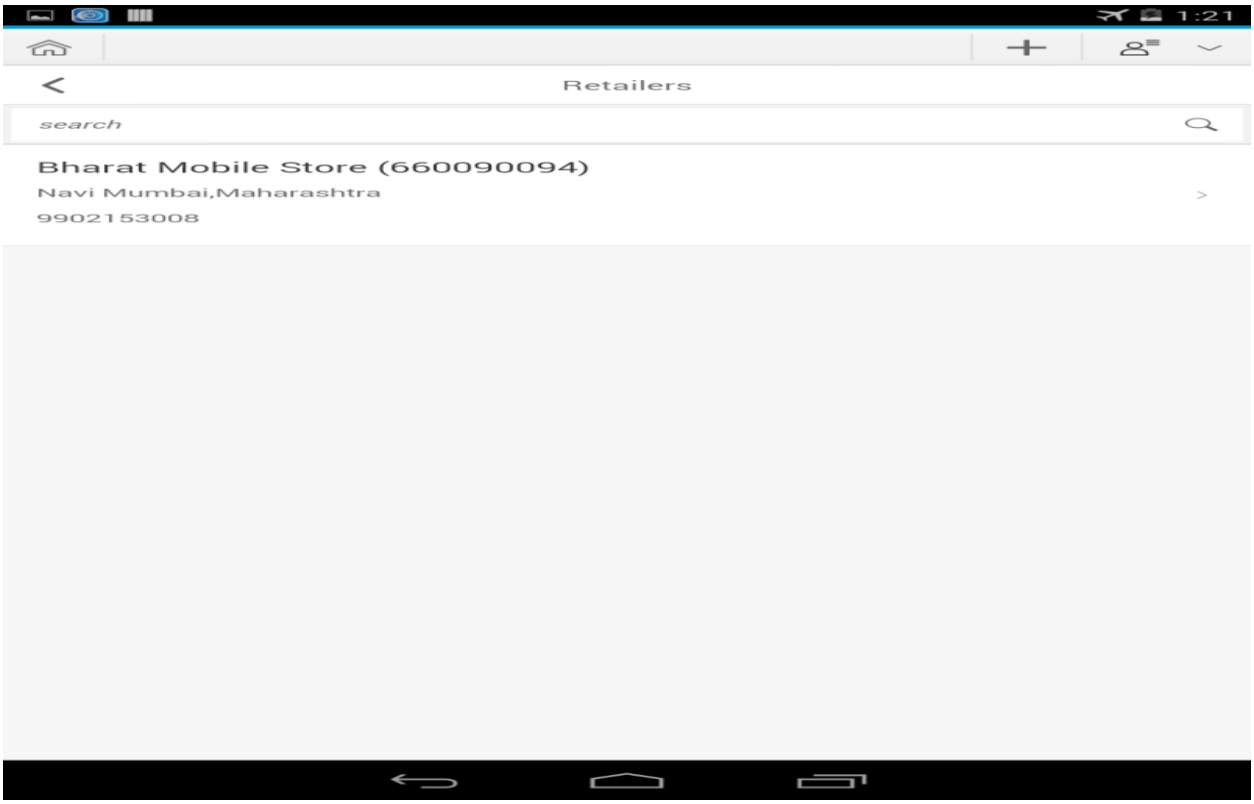
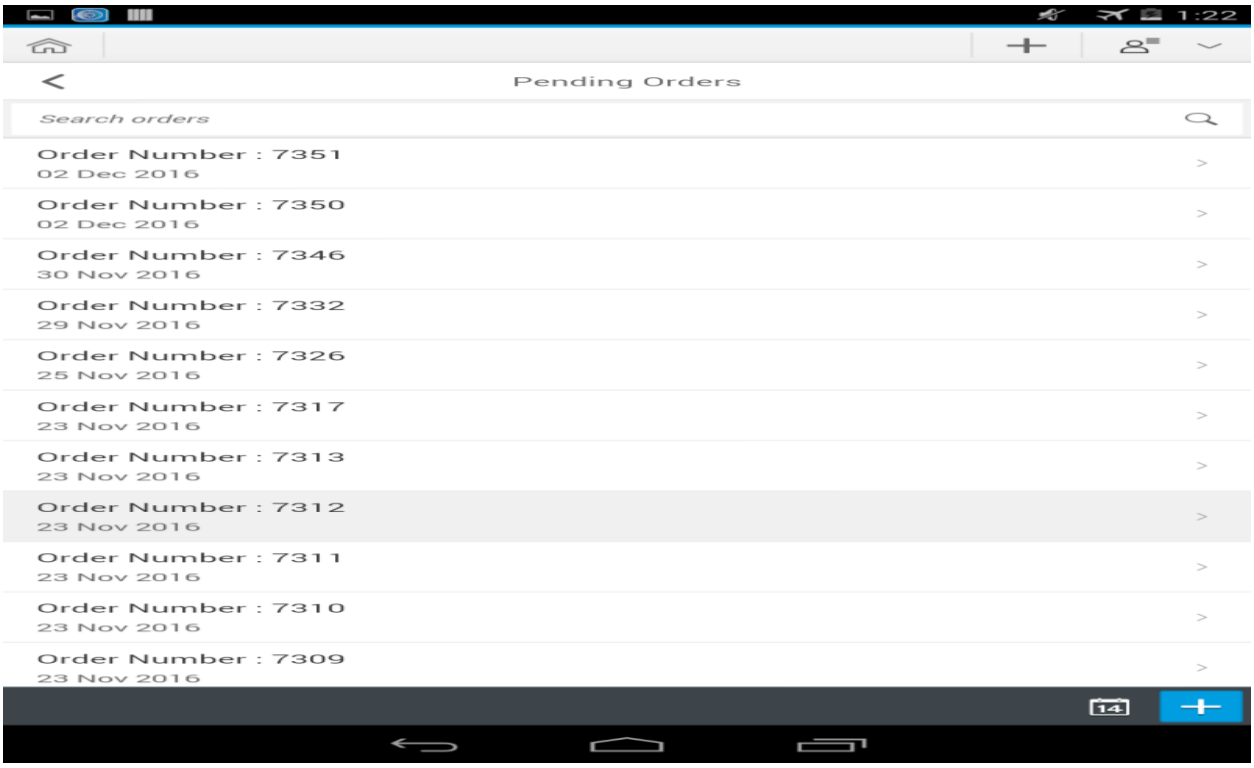
Prashant Kumar Singh





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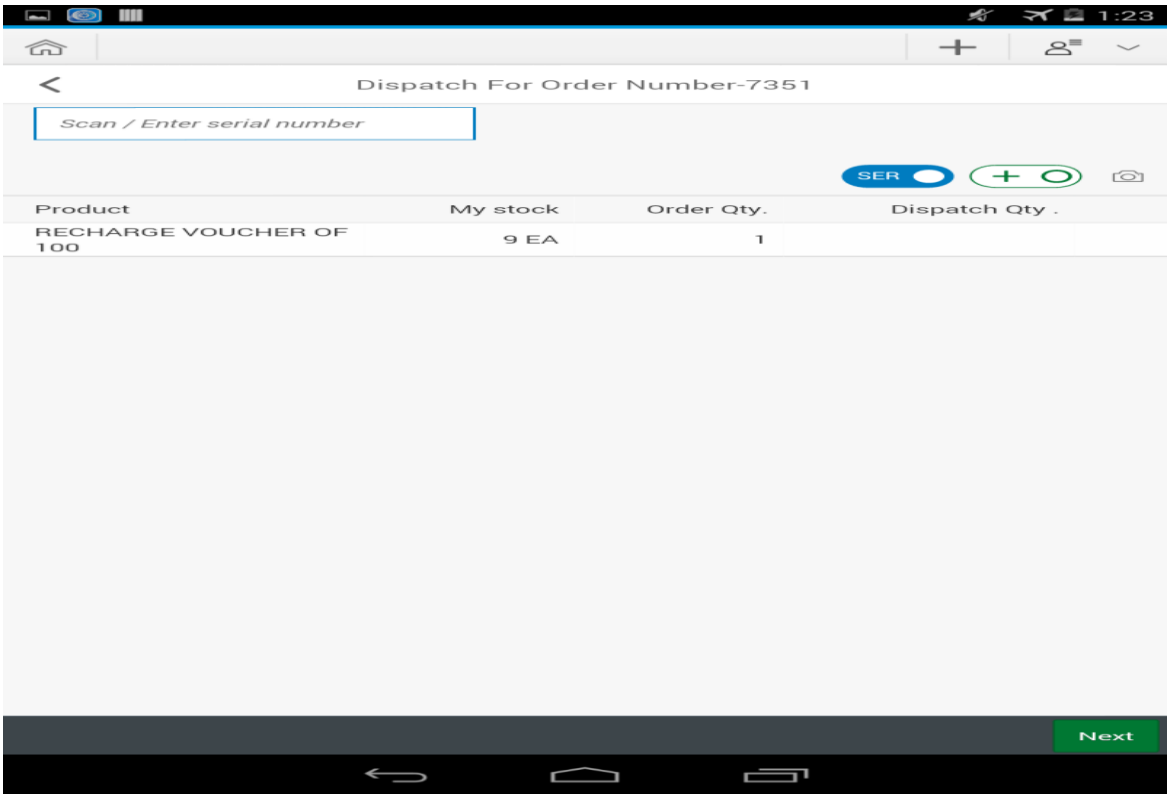
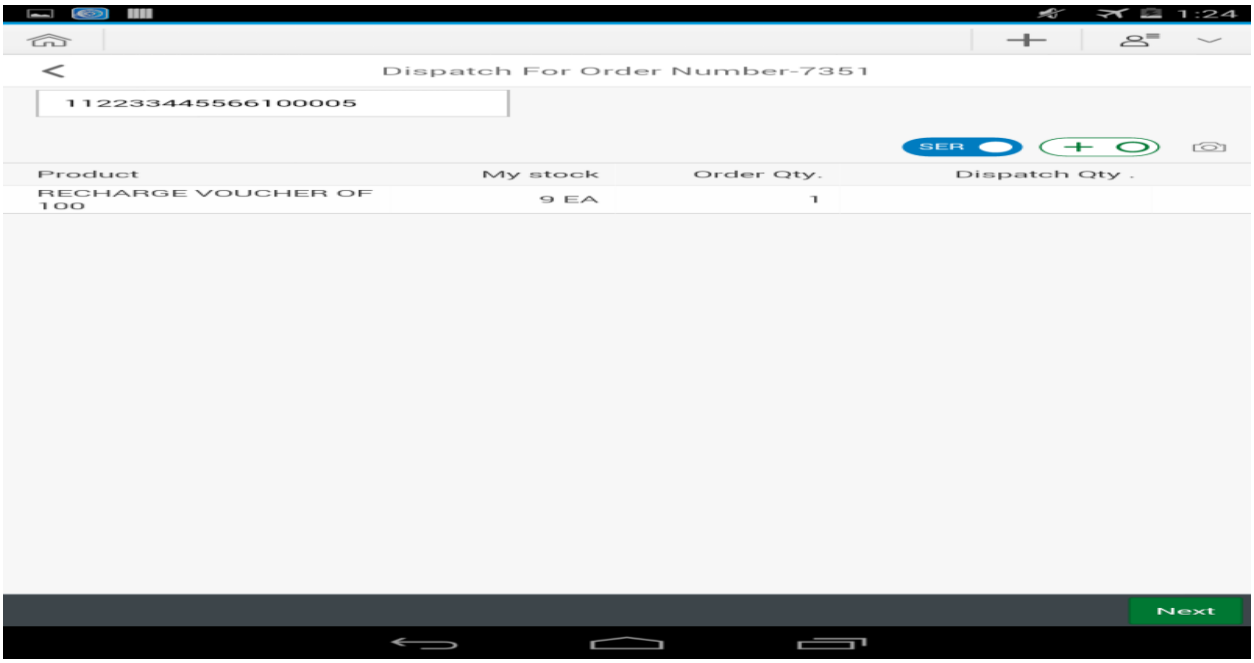
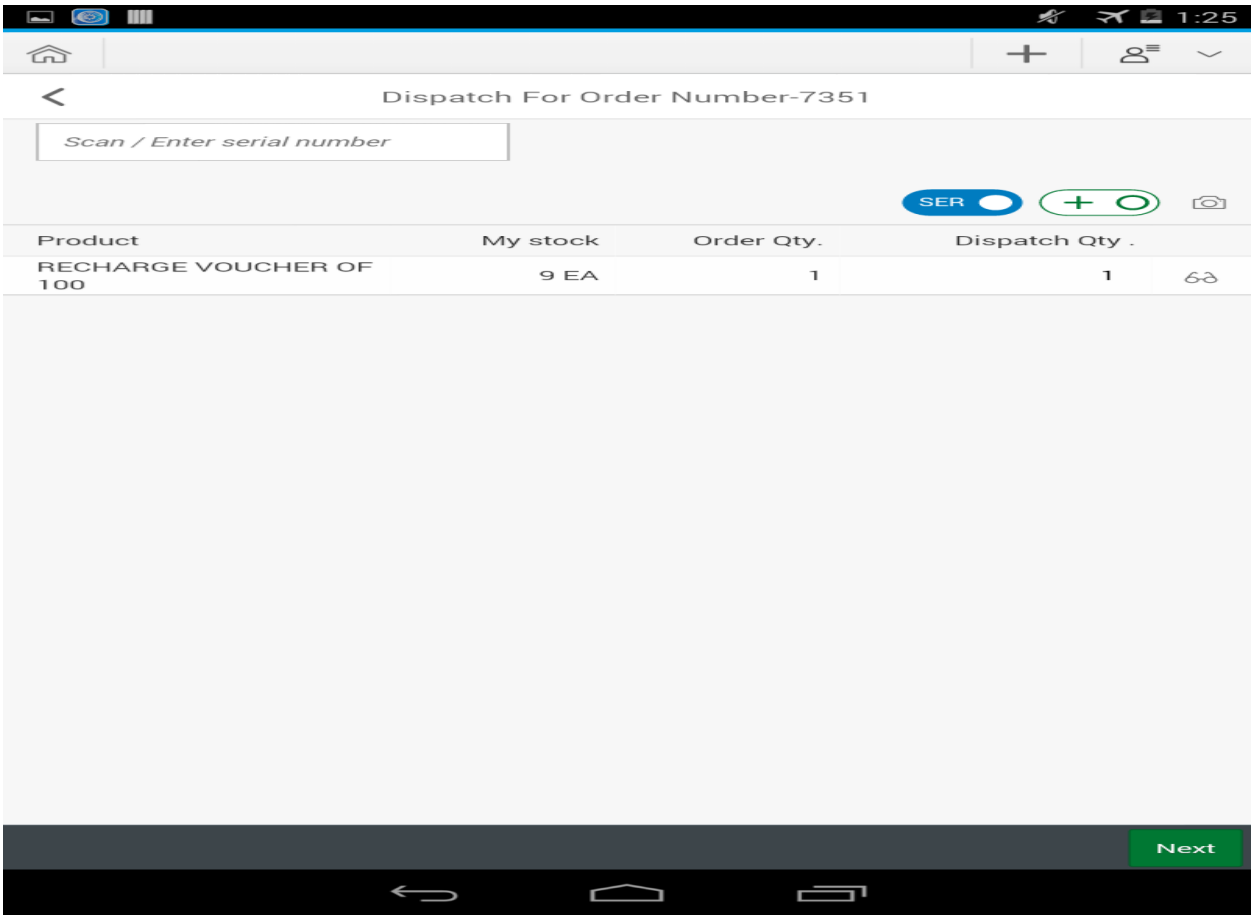
Prashant Kumar Singh

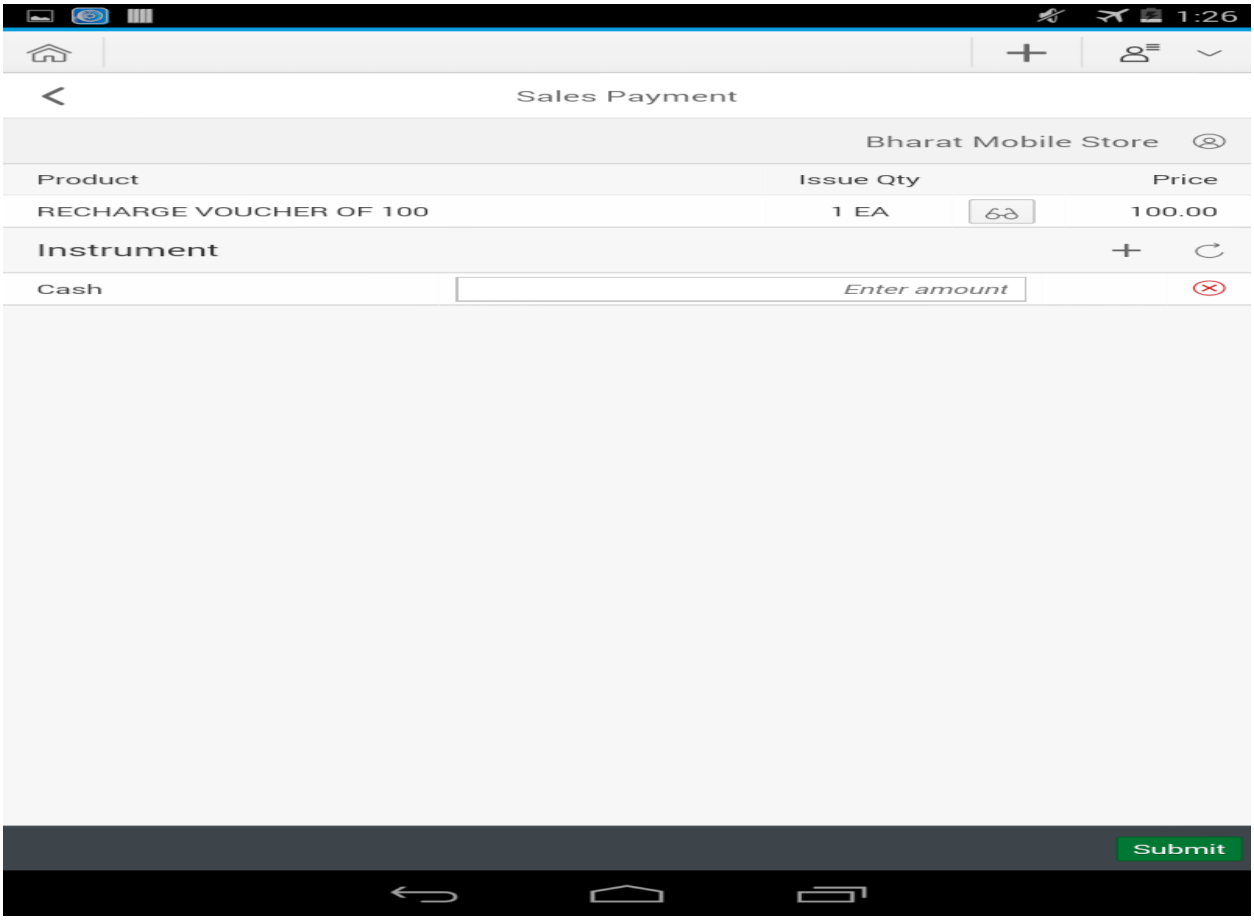




Created By:
Prashant Kumar Singh



Created By:
Prashant Kumar Singh



How to perform CREATE operation in FIORI Apps Offline as well as in Online using SMP?

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Prashant Kumar Singh