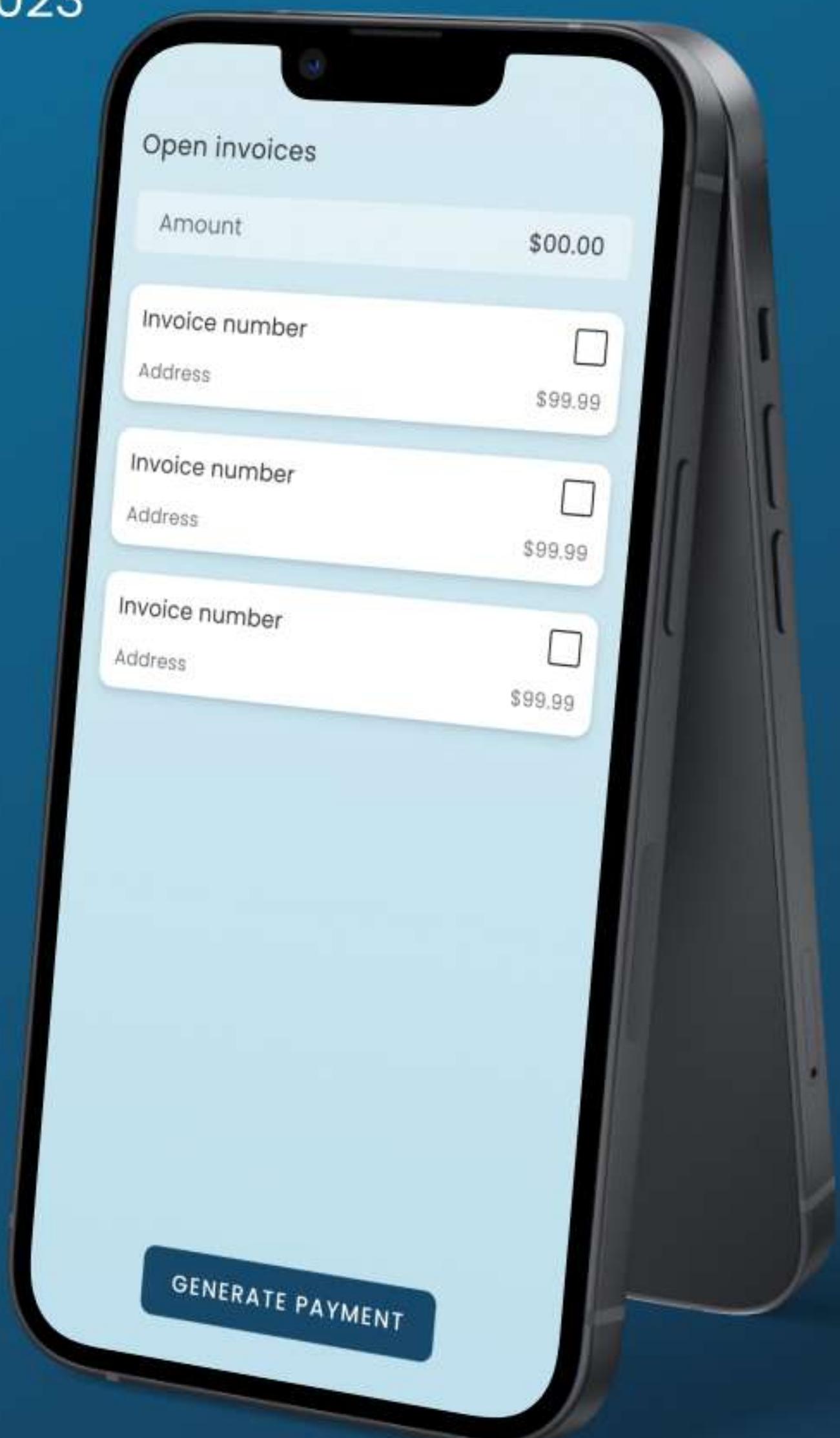


Streamlining Frontend Development with iDempiere REST API and Flutter: A Complete Use Case.

By Matheus Marcelino





Matheus Marcelino

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Today we'll discuss about:

- Challenges using flutter consuming idempiere REST API and how we improved it
- The development of Rest Auth Token and what motivates me to do that
- A complete use case (POC), step by step, using these features

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The Challenge: Integrating iDempiere with REST API

Autocorp
soluções em tecnologia

 **quickLog**

[] **codeScan**

 **traktus**

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 **devCoffee**
SOLUÇÕES EM TECNOLOGIA

- A lot of code duplication
- One project have implemented a solution that works in another project
- Different ways to reach the same result
- A lack of pattern
- Doubts from junior developers related to using query options
- Doubts from developers that don't know idempiere and don't understand the "two step" login and confuses the two tokens

```
4  getCbPartner(String token) async{  
5      String url = "https://mundodocafe.brerp.cloud/api/v1/models/c_bpartner?\$filter=C_BP_Group_ID eq 1000000  
6          and COF_SituacaoComercial eq 'PA'&\$contains=(lbr_IE ,1')  
7          &\$expand=ad_user(\$select=Name, Phone ; \$contains=(Name, 'a') ;  
8          \$orderby=Name, Email ; \$top=10 ; \$skip=5");  
9  
10     Map<String, String> header = {  
11         'Content-Type': 'application/json',  
12         'Accept': 'application/json',  
13         "Authorization": "Bearer $token",  
14     };  
15  
16     final response = await http.get(Uri.parse(url), headers: header);  
17  
18     if (response.statusCode == 200) {  
19         print(response.body);  
20         return json.decode(response.body);  
21     } else {  
22         throw Exception('Failed to retrieve business partner data from API');  
23     }  
24 }
```

Introducing the Solution: Dart Package for iDempiere

idempiere_rest 1.0.0 

Published 4 days ago ·  devcoffee.com.br Dart 3 ready

SDK DART FLUTTER PLATFORM ANDROID IOS LINUX MACOS WINDOWS

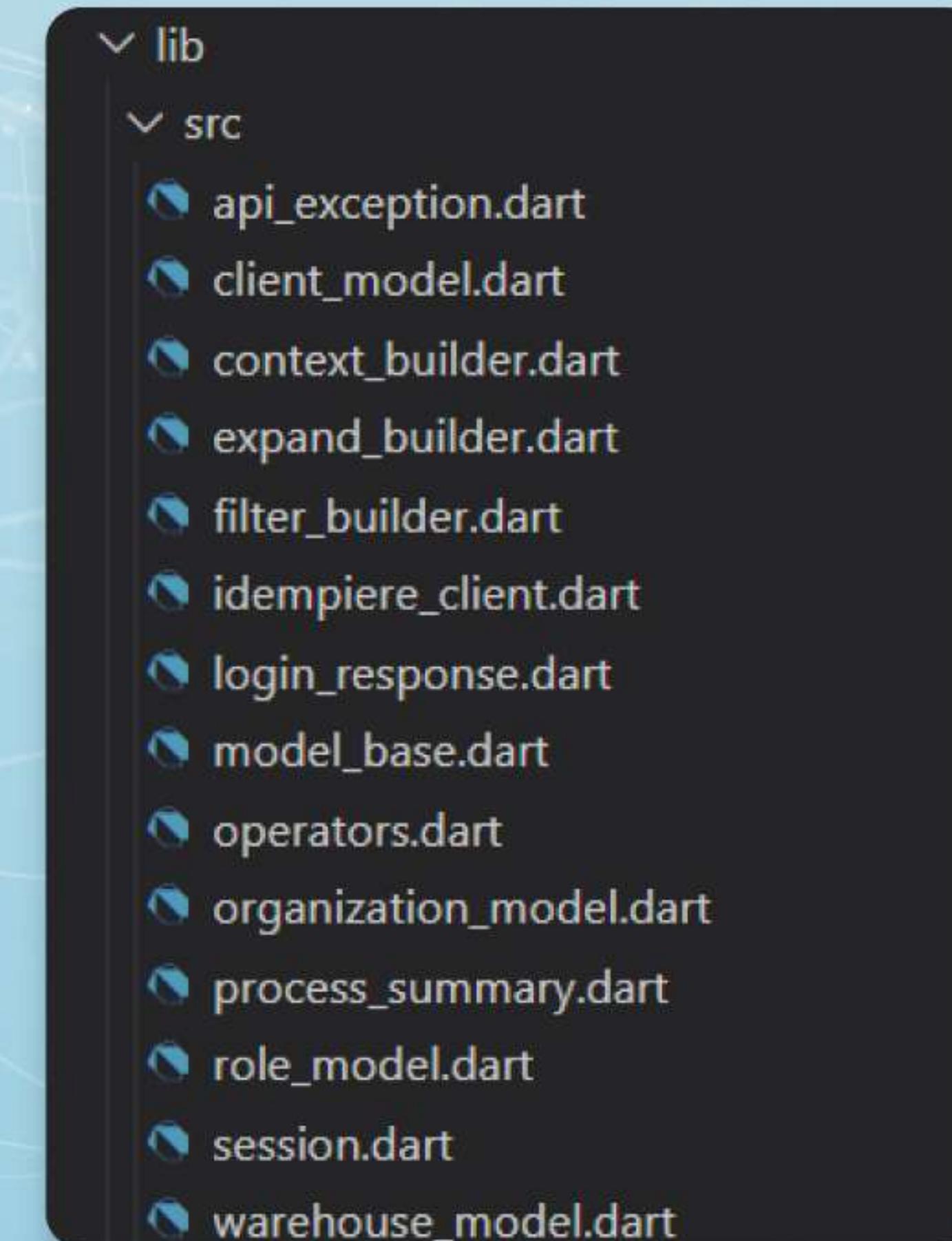
[Readme](#) [Changelog](#) [Example](#) [Installing](#) [Versions](#) [Scores](#) [Admin](#)  [A](#)

A Dart client to facilitate the consume of idempiere rest api (<https://github.com/bxservice/idempiere-rest>)

Features

This package implements some api calls listed in official documentation (https://wiki.idempiere.org/en/REST_Web_Services)

- One-step log-in
- Normal log-in
- Requesting PO Collections
- Requesting an Individual PO by ID
- Create a PO
- Remove a PO
- Update a PO
- Processes



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Using the Dart Package

idempiere_rest 1.0.1

Published in the last hour · devcoffee.com.br

[PENDING ANALYSIS]

Readme Changelog Example **Installing** Versions Scores Admin Activity log

example/idempiere_rest_example.dart

```
import 'package:idempiere_rest/idempiere_rest.dart';
import 'package:test/test.dart';

void main() async {
    // instantiate the singleton idempiere client with the API url
    IdempiereClient().setBaseUrl("https://mundodocafer.brerp.cloud/api/v1");
    // do the first token request
    LoginResponse login = await IdempiereClient()
        .login("/auth/tokens", "superuser @ brerp.com.br", "cafe123");

    //using the first client id in loginresponse (just for example purposes)
    int clientId = login.clients.first.id!;
    List<Role> roles = await IdempiereClient().getRoles(clientId);

    //using the first role id in roles (just for example purposes)
    int roleId = roles.first.id!;
    List<Organization> orgs =
        await IdempiereClient().getOrganizations(clientId, roleId);

    //using the first org id in orgs (just for example purposes)
    int orgId = orgs.first.id!;
    List<Warehouse> warehouses =
        await IdempiereClient().getWarehouses(clientId, roleId, orgId);

    //using the first warehouseId in warehouses (just for example purposes)
    int whId = warehouses.first.id!;
```

```
//init session
IdempiereClient().initSession(
    "/auth/tokens", login.token, login.clients.first.id!, roleId,
    organizationId: orgId, warehouseId: whId);

FilterBuilder filter = FilterBuilder();
filter
    .addFilter('C_BP_Group_ID', Operators.eq, 1000000)
    .and()
    .addFilter('COF_SituacaoComercial', Operators.eq, 'PA')
    .and()
    .addFilter('lbr_IE', Operators.contains, '1');

ExpandBuilder expand = ExpandBuilder();

FilterBuilder childFilter = FilterBuilder();
childFilter.addFilter('Name', Operators.contains, 'a');

expand.expand("AD_User",
    columnName: ['Name', 'Phone'],
    filter: childFilter,
    orderBy: ['Name', 'EMail'],
    top: 10,
    skip: 5);

List<MBPartner> records = await IdempiereClient().get<MBPartner>(
    "/models/c_bpartner", (json) => MBPartner(json),
    filter: filter,
    expand: expand,
    orderBy: ['COF_SituacaoComercial', 'Name'],
    select: ['Name', 'Name2'],
    top: 10,
    skip: 2,
    showsql: true);

print(records);
```

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Using the Dart Package

```
MBPartner newRecord = MBPartner.newTest(1000000, 'BParner Test');
MBPartner? record =
    await IdempiereClient().post<MBPartner>("/models/c_bpartner", newRecord);

print(record);

record = await IdempiereClient().getRecord<MBPartner>(
    "/models/c_bpartner", record.id!, (json) => MBPartner(json));

print(record);

record!.name = 'BPartner Test Put';
MBPartner updatedRecord =
    await IdempiereClient().put<MBPartner>("/models/c_bpartner", record);
print(updatedRecord);

bool isDeleted =
    await IdempiereClient().delete("/models/c_bpartner", record.id!);
print(isDeleted);

ProcessSummary ps = await IdempiereClient().runProcess(
    "/processes/ad_role_accessupdate",
    params: {'AD_Role_ID': 1000000, 'ResetAccess': 'N'});

print(ps.logs);
}
```

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Using the Dart Package

```
class MBPartner extends ModelBase {
    late int cBPGroupId;
    late String name;

    MBPartner.newTest(this.cBPGroupId, this.name) : super({});

    MBPartner(Map<String, dynamic> json) : super(json) {
        id = json['id'];
        name = json['Name'];
    }

    @override
    Map<String, dynamic> toJson() {
        Map<String, dynamic> data = {};
        if (id != null) {
            data['id'] = id;
        }
        data['Name'] = name;
        data['C_BP_Group_ID'] = cBPGroupId;
        data['AD_Language'] = 'en_US';

        return data;
    }

    @override
    MBPartner fromJson(Map<String, dynamic> json) {
        id = json['id'];
        name = json['Name'];
        return this;
    }
}
```

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Rest Auth Token

- Motivation:
 - Server secret;
 - Multi instance;
 - Webhook integration.

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Rest Auth Token

The screenshot shows the Google Cloud Functions interface for a Java function named "webhook-callback-problema-logistico". The function is in its 1^ª generation and has been deployed to version 19, which was implemented on July 19, 2022. The "ORIGEM" tab is selected, showing the project structure and the code for the "Webhook.java" file.

Ambiente de execução: Java 11 Ponto de entrada: org.devcoffee.webhook.Webhook

FAZER O DOWNLOAD DO ZIP

```
String language;
if (description.equals("SOLVED")) {
    // Primeira etapa
    String url = urlPadrao + "auth/tokens";
    FirstLoginRequest flr = new FirstLoginRequest(user, password);
    FirstLoginResponse loginPrimeiraEtapa = (FirstLoginResponse) executarRequisicao(null, url, "POST", flr, FirstLoginResponse.class);
    if (loginPrimeiraEtapa == null)
        throw new Exception("Não foi possível realizar a primeira etapa do login!");
    authorization = "Bearer " + loginPrimeiraEtapa.getToken();
    clientId = loginPrimeiraEtapa.getClients().get(0).getId();

    // Buscando dados para segunda etapa
    url = urlPadrao + "auth/roles?client=" + clientId;
    RolesResponse roles = (RolesResponse) executarRequisicao(authorization, url, null, null, RolesResponse.class);
    if (roles == null)
        throw new Exception("Nenhum Perfil foi encontrado!");
    roleId = roles.getRoles().get(0).getId();

    url = urlPadrao + "auth/organizations?client=" + clientId + "&role=" + roleId;
    OrganizationsResponse organizations = (OrganizationsResponse) executarRequisicao(authorization, url, null, null, OrganizationsResponse.class);
    if (organizations == null)
        throw new Exception("Nenhuma Organização foi encontrada!");
    organizationId = organizations.getOrganizations().get(0).getId();

    url = urlPadrao + "auth/warehouses?client=" + clientId + "&role=" + roleId + "&organization=" + organizationId;
    WarehousesResponse warehouses = (WarehousesResponse) executarRequisicao(authorization, url, null, null, WarehousesResponse.class);
    if (warehouses == null)
```

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Rest Auth Token

The screenshot shows the iDempiere ERP system interface with the following details:

- Header:** iDempiere Open Source ERP System, rest, Feedback, Preference, Change Role, Log Out.
- Breadcrumbs:** Home (15) > Rest Auth Token: webhook pix.
- Toolbar:** Select Query, search, add, edit, delete, refresh, print, etc.
- Page Title:** Rest Auth Token
- Form Fields:**
 - Tenant*: GardenWorld
 - Name*: webhook pix
 - Description
 - User/Contact*: Webhook User
 - Warehouse
 - Expires in Minutes*: 0
 - Token: A long base64 encoded string starting with eyJraWQiOjI... and ending with ...wiQURfQ2xpZ...
eyJraWQiOjI...
OjJXZWJob29rIFVzZXliLCJBRF9MYW5ndWFnZSI6ImVuX1VTIiwiQURfU2Vzc2lv
bl9RCI6MTAwMDAwNSwiQURfVNlcI9RCI6MTAwMDAwMCwiQURfUm9sZV
9JRCI6MTAwMDAwMCwiQURfT3JnX0lEljowLCJpc3MiOiJpZGVtcGllcmUub3JnIi
wiQURfQ2xpZWS50X0lEljoxMX0.ocHKA1BahJ582x4eKe1Frc6ax9YE7fTnwhPf44
 - Session: Webhook User_1000005
 - Organization*
 - Role*: Webhook Role
 - Language*: English (USA)
 - Expires At
 - Expired
 - Active
 - Processed

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Rest Auth Token

The screenshot shows a configuration interface for a webhook. At the top, there is a green header bar. Below it, the main form has the following fields:

- Nome:** IWC - WEBHOOK
- Ativo:**
- Evento:** Transação Pix Recebida
- Url:** <https://rdp22.devcoffee.cloud/api/v1/processes/webhookpix>

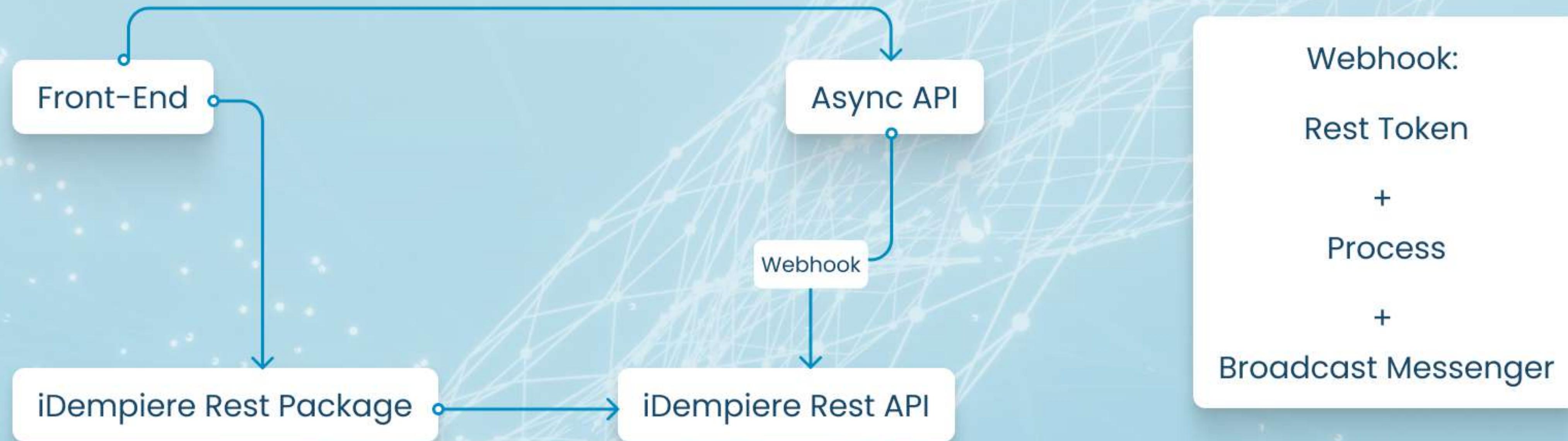
Below these fields is a section titled **Cabeçalhos HTTP (opcional)** (Optional HTTP Headers). It contains four entries:

Cabeçalho HTTP	Valor
Accept	application/json
Content-Type	application/json
X-OpenPix-Signature	Gerado por requisição
Authorization	Bearer eyJraWQiOiJpZGVtcGllcmUiLCJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJpc3MiOiJodHRwOi8vcmVkaXVzLmNlY29jZWZpbmcuY29tIiwiZXhwIjoxNjUyMjQwOTk4fQ.vDgqfC9HdXcOOGPjBxRzrJF0KuXyfzJ

At the bottom right of this section is a button labeled **Adicionar novo cabeçalho HTTP** with a plus sign.

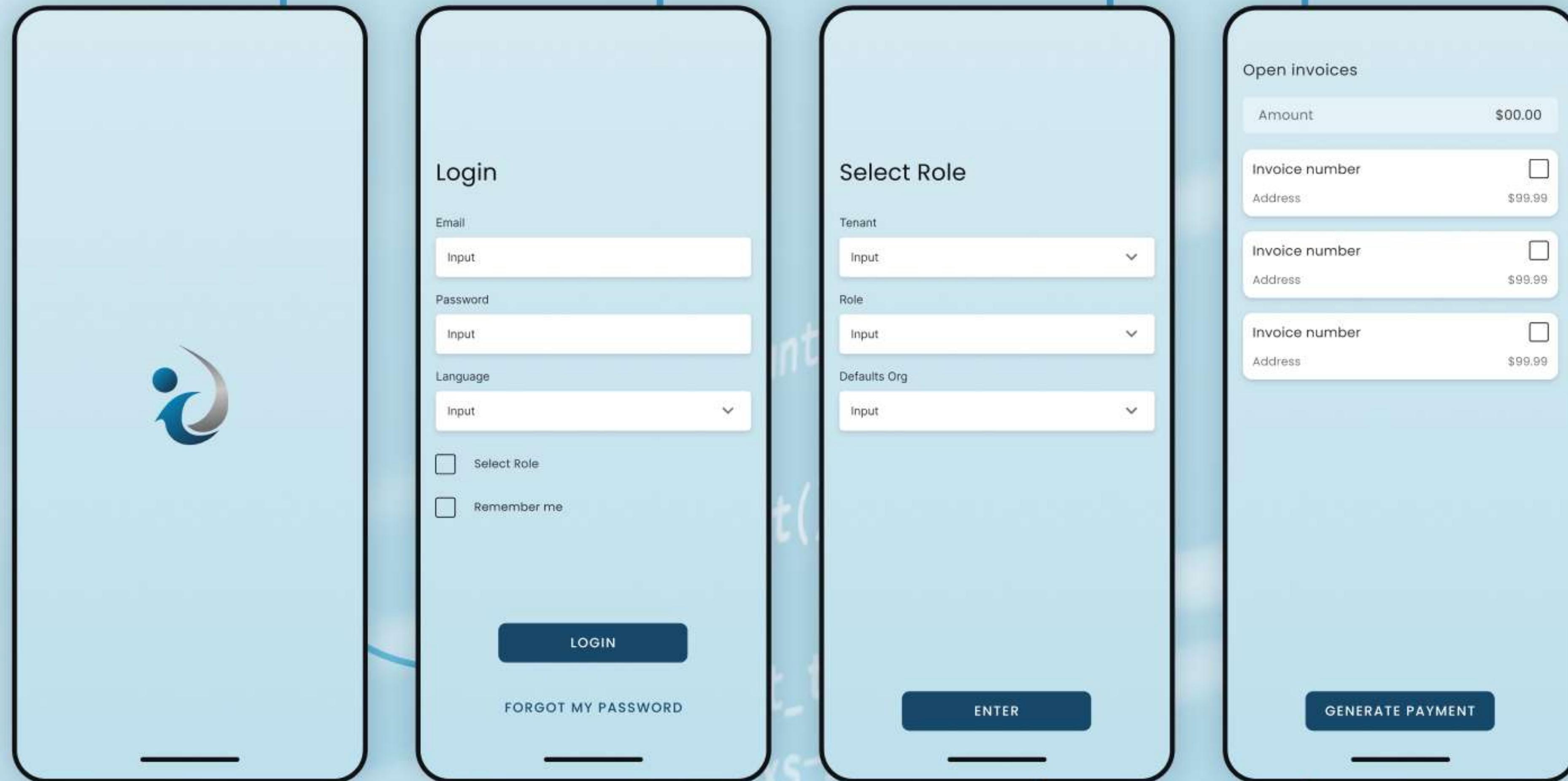
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Use Case: App in Flutter Consuming iDempiere REST API



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First Step: Figma design



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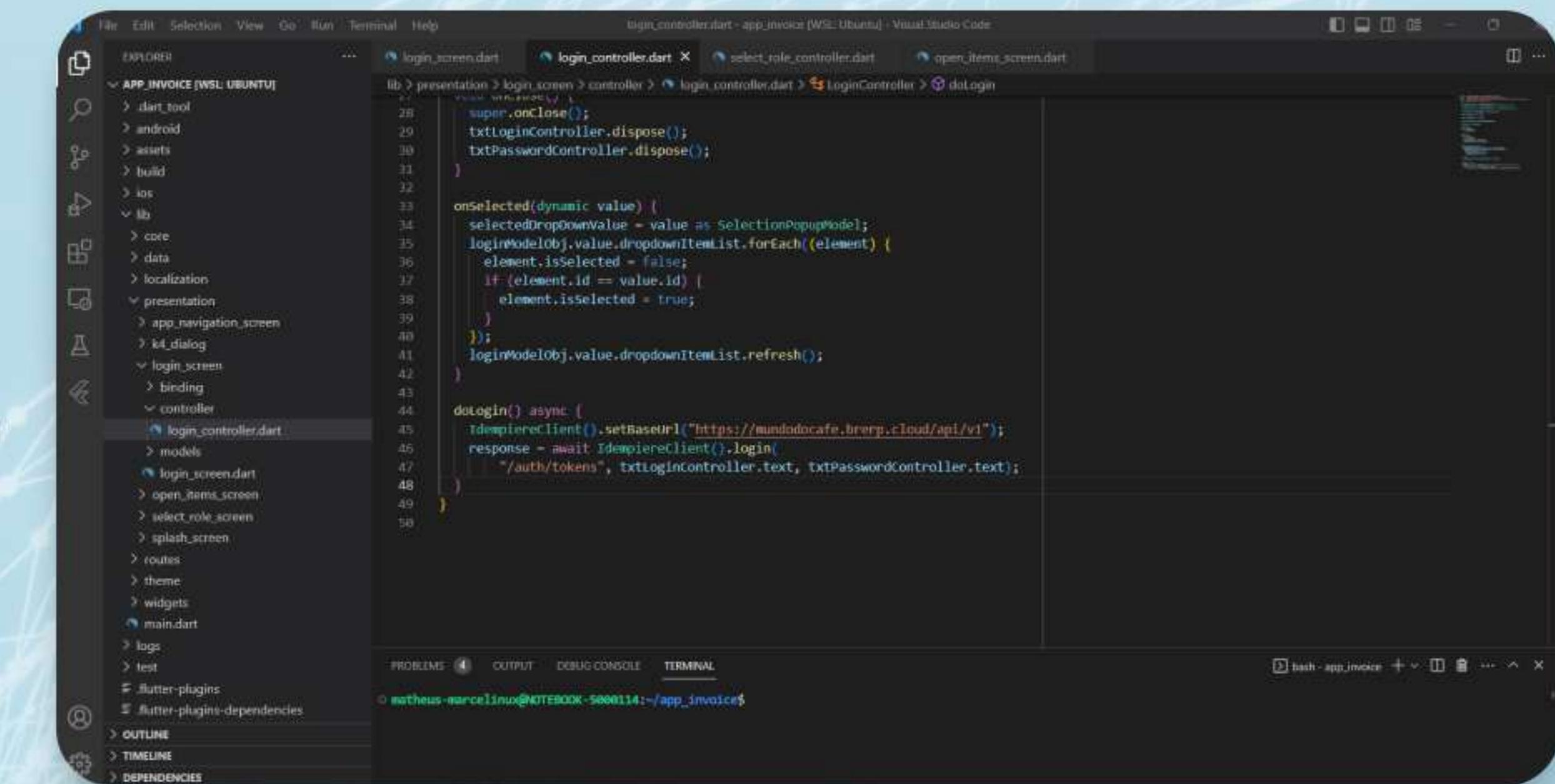
Second Step: Export the design with DhiWise



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Third Step: Front-End Development

- Fix some components
- Import package in pubspec.yaml
- Create login method
- Load dropdowns components in select role screen
- Create a method to retrieve invoice information
- Create a method to call the open pix API



A screenshot of the Visual Studio Code interface. The left sidebar shows a project structure for 'APP_INVOICE [WSL: UBUNTU]' with folders like dart_tool, android, assets, build, ios, lib, core, data, localization, presentation, k4_dialog, login_screen, binding, controller, models, login_screen.dart, open_items_screen, select_role_screen, splash_screen, routes, theme, widgets, main.dart, logs, test, flutter-plugins, flutter-plugins-dependencies, OUTLINE, TIMELINE, and DEPENDENCIES. The right pane displays the 'login_controller.dart' file. The code includes imports for 'lib', 'presentation', 'core', 'data', 'localization', 'k4_dialog', 'login_screen', 'binding', and 'controller'. It defines a class 'LoginController' with methods 'onSelected', 'onLogin', and 'doLogin'. The 'doLogin' method uses 'IdempiereClient' to set the base URL and log in with 'username' and 'password'.

```
File Edit Selection View Go Run Terminal Help
login_screen.dart login_controller.dart select_role_controller.dart open_items_screen.dart
EXPLORE APP_INVOICE [WSL: UBUNTU]
lib > presentation > login_screen > controller > login_controller.dart > LoginController > doLogin
...
super.onClose();
txtLoginController.dispose();
txtPasswordController.dispose();
}

onSelected(dynamic value) {
selectedDropDownValue = value as SelectionPopupModel;
loginModelObj.value.dropdownItemList.forEach(element) {
element.isSelected = false;
if (element.id == value.id) {
element.isSelected = true;
}
);
loginModelObj.value.dropdownItemList.refresh();
}

doLogin() async {
IdempiereClient().setBaseUrl("https://mundodocafe.brerp.cloud/api/v1");
response = await IdempiereClient().login(
"/auth/tokens", txtLoginController.text, txtPasswordController.text);
}

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
mathias.marcelinux@NOTEBOOK-5000114:~/app_invoice$
```

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Fourth Step: Back-End

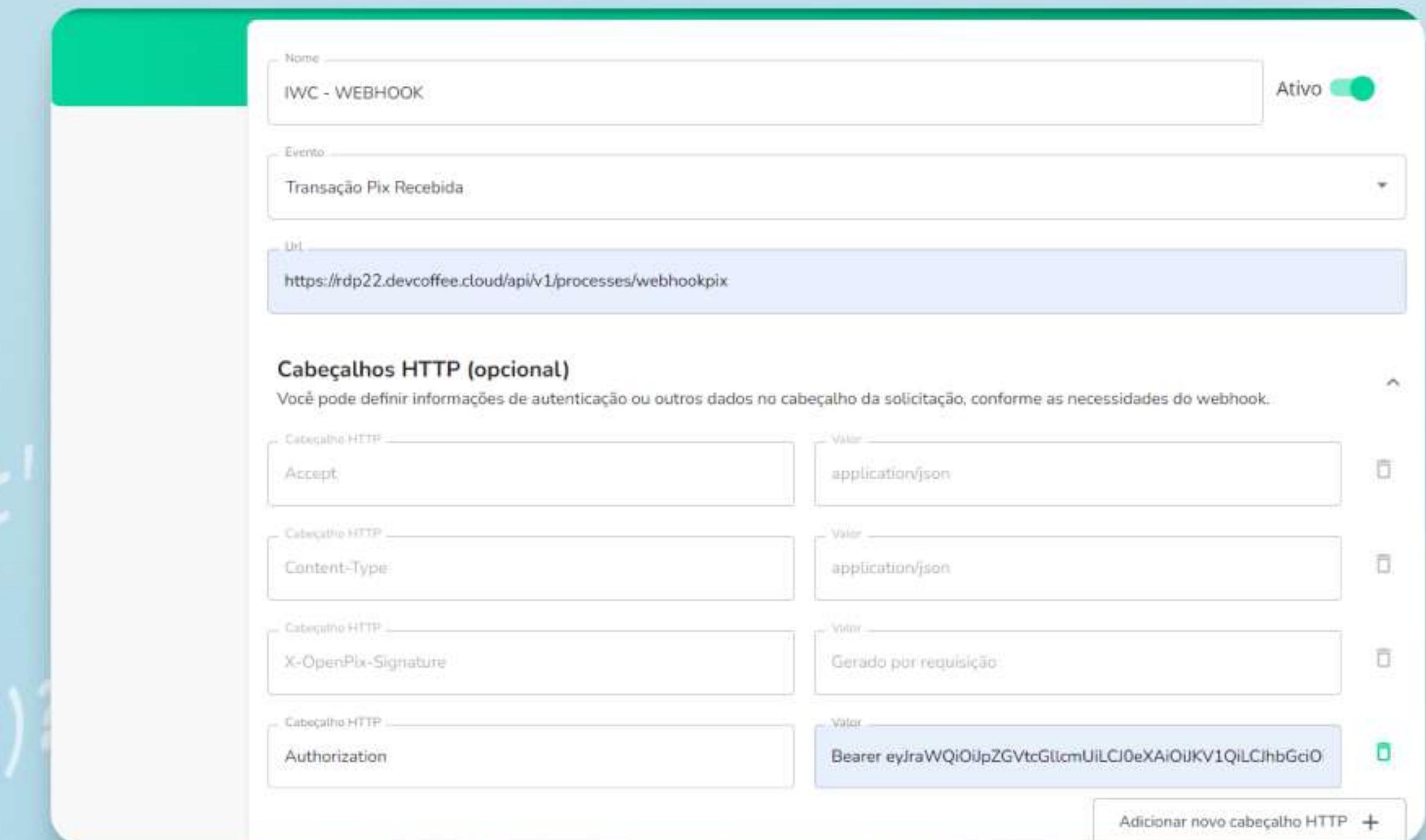
- Create column identifier in c_invoice
- Create eventhandler to call openpix api
- Create process to process webhook



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Fifth Step: Configure Webhook

- Create a role with access to created process
- Create a user and assign the role
- Create rest auth token for the user and role
- Configure in api admin panel (openpix)



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Conclusion

- `idempiere_rest` package
 - Saves time
 - Easy usage
 - Reduces requests errors
 - Project standardization
- Rest auth token
 - More control about server secret
 - Multi instance
 - Webhook



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Thank you

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Any questions?

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