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Combining Low Code with High Code Development in Oracle APEX

★ APEX is a cutting edge low-code framework which is “20x faster and with 100x less code” quote: Oracle APEX Homepage

Your task is to leverage this to your users.

Example:

“*Please bring us a user friendly application, where the users can service themselves with the weekly and monthly data!*”

The catch..

- Your data model is by no means optimized for APEX, and looking at database objects through APEX pages, does not (out of the box) bring you the solution you are looking for.



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SoftBASE and I.

- **SoftBASE A/S is an APEX development house** and consultancy **with more than 15 years of experience** with APEX Development.
    - *Latest APEX activities: BizzPath, an on-line multi-tenant accounting system, developed together with the KSA authorities ZATCA for Vision 2030 and a KSA company “Muhimma for IT”.*
    - *Projects and activities in Denmark, Iceland, Sweden, Germany, UK, Switzerland, Poland and KAS.*
- **Robert Johannesson is an Oracle full stack developer** with **over 30 years development experience** in various Oracle technologies, including; Oracle RDBMS, PlSql, Oracle Forms/Reports, ADF, java, webservices (SOAP), **APEX, ORDS and REST** services, CSS and javascript.



What is a low code development platform?

(According to ChatGPT tm)

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Key characteristics of low-code development include:

1. **Visual Interface**: Developers can design application components using visual tools, reducing the need for manual coding.
2. **Pre-built Components**: Low-code platforms often provide a library of pre-built components (such as forms, data tables, and integrations) that can be easily customized and integrated into applications.
3. (**Workflow Automation**: Low-code development often focuses on automating business processes and workflows, making it suitable for creating applications that involve repetitive tasks.)
4. **Rapid Development**: Applications can be developed and deployed more quickly compared to traditional coding approaches.
5. Reduced Technical Expertise Requirement: Low-code platforms aim to empower a broader range of individuals, including those with less programming experience, to participate in the development process.
6. **Scalability and Customization: While low-code platforms provide ready-made components, they usually allow for customization and the incorporation of custom code to handle specific requirements.**
7. **Cross-platform Deployment**: Applications created with low-code platforms can often be deployed across various devices and platforms.



Leveraging low-code.

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The saying..

Low-code development is particularly useful for creating simple *to moderately complex* ***applications, prototyping****, and rapidly iterating on ideas. However, it might not be the best choice for extremely intricate or highly specialized projects that demand a deep level of control and customization that traditional coding provides.*

Is APEX as a low code development platform suitable for more specialized projects including function-driven development?



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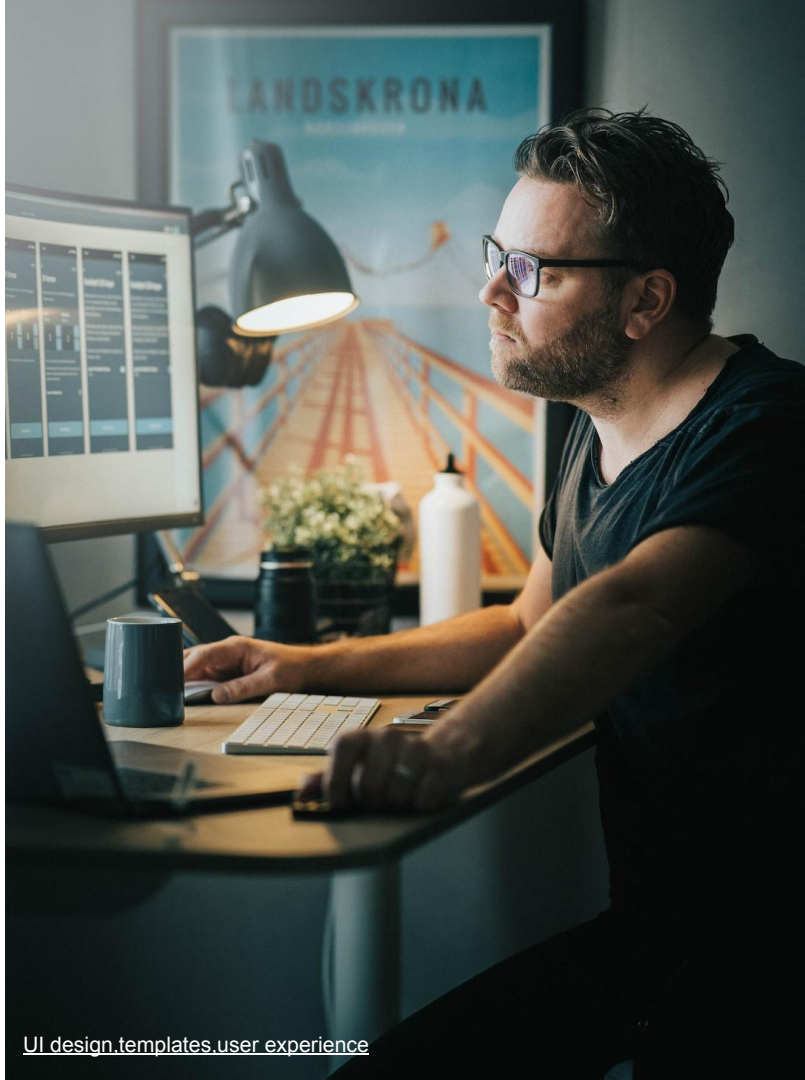
The power of APEX, widgets and wizards

Oracle APEX for Rapid Development and visually appealing results:

- **Application generation** wizards
- **Page generation** wizards, Calendar, Cards, Chart; Dashboard, Faceted Search, Maps, Content List, Wizard page a.m. A list that keeps growing
- The classics, Classic report, Interactive report, interactive grid, Form
- Master detail
- Region widgets and Item widgets.

Demo 1. **Create an application** for Customer SH_CUSTOMER_VENDOR_MASTER, overview and maintenance, based on the BizzPath customer table from BizzPath.

Demo 2. **Add a master-detail** to the application for document creation, based on the SH_INVOICES and SH_INVOICE_LINES



UI design.templates.user experience

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The power of APEX, widgets and wizards

How close did we come to a real user GUI and what is the catch?

- The wizards are mainly driven by database objects, which leads mainly to a data driven UI.

However the users don't care about database objects, Id's, primary Keys, Foreign Keys, master detail or anything else related to the database.

- **They want to handle their tasks**, given a suitable/optimized GUI Pages and functions.

Did we also get code we didn't need and don't want to maintain going forward?

- Maybe, you decide, but..
- Be aware of wizards, use widgets...😊



agility.time-to-market.efficient deployment

The power of APEX, with function driven development, including “high code”.

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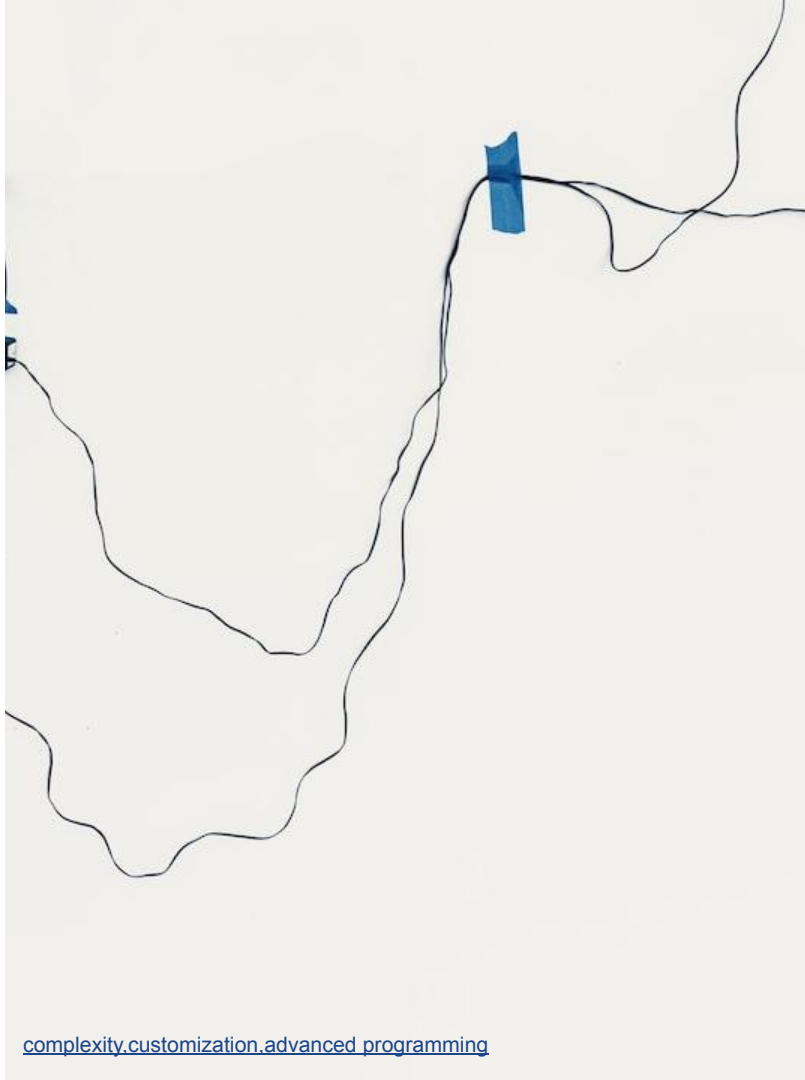
Harnessing the Synergy, combining Low Code and High Code:

Demo 1: Developing a function-driven UI in APEX.
Case: **Function driven** document creation Bizzpath.

- **Blank page with prerender process** ,
- **Styling,** inline css for styling
- **Master detail to interactive grid**
- **Processes** - Save Invoice Data, Initiate lines, calculate lines, save interactive grid.

High code development involves integration of custom code with APEX components. It’s still native to APEX, put in declaratively.



complexity,customization,advanced programming

Beyond the UI - Authentication and Authorization (Out of the box)

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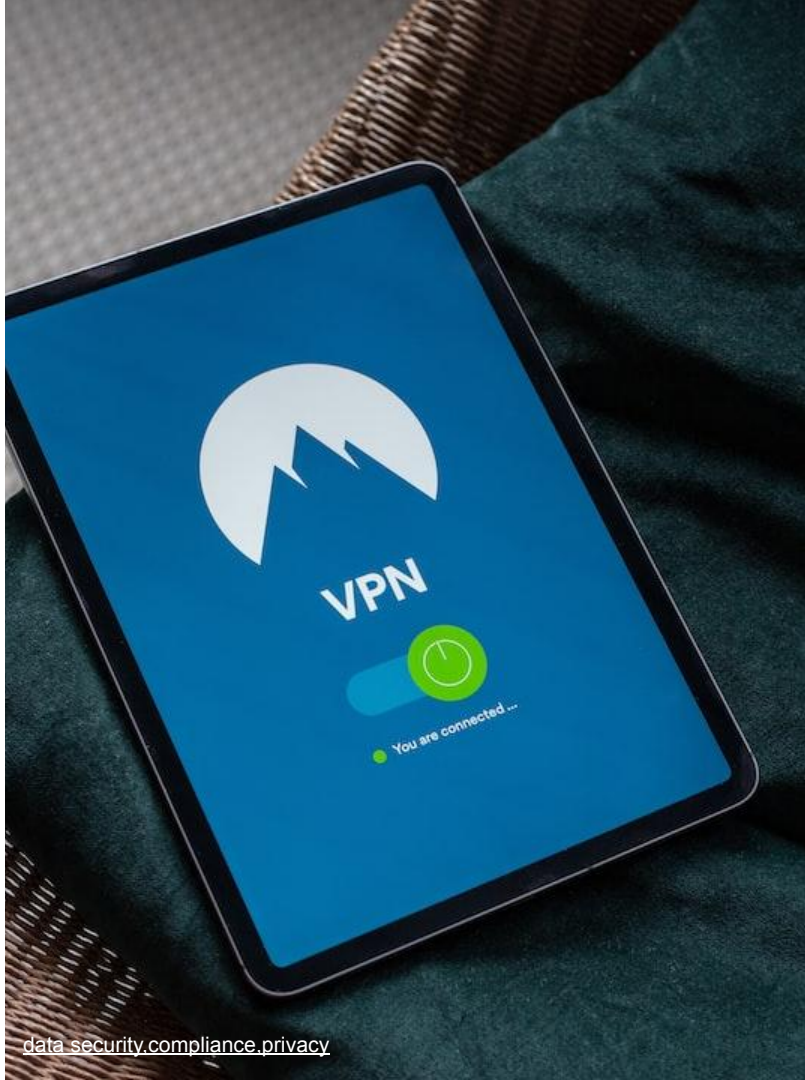
Security Concerns:

- Brief overview of security challenges in application development.
- Authentication and authorization.

APEX supports secure development out of the box.

- Integrating authentication mechanisms and role-based access control.
- The administration page from the Application development wizard

Oracle APEX incorporates robust security features to protect sensitive data, ensuring compliance with industry standards.



data_security.compliance.privacy

Beyond the UI - Authentication and Authorization (BizzPath example)

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Goals:

- **User (Authentication) management in runtime,** outside of APEX development environment.
- **Authorization management in runtime,** outside of APEX development environment.
- **Navigation management in runtime,** outside of APEX development environment.
- **Smaller manageable applications**, function oriented, that can be deployed as “standalone”, or together with other applications. Easily maintainable.
- **Separating the function development and the security development** but still having security as an implicit part of each page.

Demo: Authentication, Session sharing, Authorization



Conclusion:

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- APEX has powerful wizards and widgets for automated low code development
- According to needs, utilize APEX features for the combination of low code wizards with declarative use of “high code” in the form of PlSql, CSS, html and javascript (and more).
- Add additional Authentication, Authorization and even Navigation for multi.application development for bigger projects

Oracle APEX applications are highly scalable and performant, ensuring efficient handling of large amounts of data and concurrent user interactions. Even for bigger development projects,



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Contact and Q&A's

Robert Johannesson

https://www.linkedin.com/in/robert-johannesson-863817
@roj_johannesson
roj@softbase.dk

SoftBASE A/S
Lerhøj 15
2880 Bagsværd
tlf. 38100097

https://www.softbase.dk
https://www.bizzpath.com

Q&A's

