ReDo Air
Text: UK
Software: UK

REALDOLMEN

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1. Redo Air

1.1. Doel

- Theorie in praktijk omzetten
  - Technologie leren gebruiken
  - Omgaan met issues en feedback
  - Prioriteiten
- Best practice approach
  - Denk eens na over wat beste aanpak is
- Tools leren gebruiken
  - Git, Travis, …
- Het gaat hier niet enkel meer enkel over de techniek
  - Ook functionaliteit is belangrijk
  - Zorgen voor duidelijkheid tussen business en IT
- Leren presenteren
- Teamwork

1.2. Het Project

- De belangrijkste input voor een project
  - Requirements
- Indien twijfel
  - Vraag om verduidelijking!
  - Zorg dat je op dezelfde lijn zit als degene die de vraag stelt
- Indien te moeilijk of een andere oplossing mogelijk
  - Challenge ze!

1.3. Te Gebruiken Technologieën

- JEE6 / JEE7
  - View layer: JSF
  - Persistence layer: JPA
  - Middleware layer: CDI en/of EJB
  - Application server: Wildfly 10
- En alles wat je tot nu toe geleerd hebt…
  - JAXP, Servlets & JSP, Git, Maven, JUnit, …
- Optioneel
  - Continuous Integration (Travis?)
- IDE
  - Vrij te kiezen

1.4. Context

> *RD Travel is a fictive company that sells holiday trips to its customers using the Internet. Every trip starts at a specific location and his one specific destination. The company offers a wide gamma of destinations all over the world. The application consists of two parts. One part that allows users to surf the website and search for a destination of their liking. A second part that allows the administrators of the system to import and export trips.*

- Zie ook het documentje

1.5. Presentatie

- Architecuur
  - High level overview
  - UML diagrammen
  - Afwegingen
- Demo van de oplossing
- Planning en samenwerking
  - Initiële planning, werkverdeling
- Effectief tijdsgebruik
  - Knelpunten, Hoe opgelost?

1.6. Succes!

SUCCES!

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ReDo Air Exercises
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1. ReDo Air

1.1. Context

ReDo Air is an airline ticket broker that works with airline companies (partners) all over the world to offer tickets services to customers. They handle hundreds of thousands of tickets handlings a day. ReDo Air can offer competitive prices because they can negotiate serious discounts. ReDo Air constantly evaluates the prices of the different flights of all the airlines it works with and therefore can offer the flight at the best price for its customers.

ReDo Air allows customers to book flights by means of an online reservation system.

The partners (the different air lines) can manage the destinations, prices and discounts. The ReDo Air employees have a user interface to evaluate margins, sales and purchases and do price overrides.

1.2. Requirements

Airline flight administration

As mentioned, ReDo Air can sell flights offered by airline companies all over the world. Each airline offers flights for combinations of two locations: a departure and destination. The partners are offered a graphical user interface which allows them to enter (and manage) the information about flights.

A flight can occur multiple times, each time, they can have a different combination of:

- Departure time
- Flight duration
- Pricing information (base price, and volume discounts)
- Remaining seats per traveling class (business, economy, first class)

Employee flight administration

ReDo Air employees have a graphical user interface in which they can enter (and manage) information about:

- The available locations used as destinations and departure airports
- Flight price-overrides
- Available partner airline information

A location can be used as a destination as well as a departure. For each location the system needs to store:

- The name of the airport
- The country of the airport

- The international airport code
- The global region of the location (e.g. Eastern Europe, Western Europe, Middle America, …)

The user interface for the management of the global regions is out of scope (these will be pre-loaded in the database), but the system must allow the user to link one of these regions to a location.

Pricing

The base price of a flight is controlled by the airlines. This will be the price they charge for a booking. The prices of occurrences of flights can be different depending on time (weekends, holidays, nightly, …). Also, the price is different per traveling class (e.g. Booking a ticket on a flight in economy class is less expensive than first class).

Partners can also offer multiple volume discounts per flight occurrence. This discount is offered as a percentage of the normal price and is granted from a minimum seat threshold for volume sales. (For example, an airline may grant a discount of 5% for bookings 2+ seats and 10% for bookings of 5+ seats).

De default price that ReDo Air charges to the travel agencies is 5% higher than the base price. This margin is the primary way ReDo Air makes money. ReDo Air employees can override this 5% default with a custom set price (not a percentage). By allowing this price to be overridden, ReDo Air has the flexibility to launch special promotions and optimize revenue.

ReDo Air employees can't change the base price (this is controlled by the partner airline), nor can a partner change the price overrides of ReDo Air.

Reporting

ReDo Air employees and partners have access to a reporting feature, which offers a graphical user interface to display statistics about bookings. This feature is useful for a different cases, and must therefore be quite flexible. Some cases this could be used for are:

- Evaluating sales quantities
- Evaluating cost and margins

The user can display a summary of the following information:

- The number of payed and pending bookings
- The average price of the sold bookings
- The min and maximum prices of the sold bookings
- The average margin ReDo Air had on these bookings

Make sure the displayed results include any price discounts correctly.

These summaries can be generated based on a number of (optional) filter criteria:

- A range of dates (lower and upper boundary) to indicate the period to include
- A list of global departure regions of the booked flight
- A list of global destination regions of the booked flight
- The airline company that offered the booked flight
- Payment status (pending or success)

The user also has the option to group the displayed results based on:

- The period
- The airline company
- The global departure region of the booked flight
- The global destination region of the booked flight

In this case the displayed summary must be extended with said fields.

The partner airlines can also access this reporting feature. However, in this case a few restrictions apply:

- Partner airlines cannot filter nor group by airline. In this case the system automatically sets the filter to the partner airline itself. This way, partners can only see information regarding themselves.
- Partner airlines cannot see the margins as this is private to ReDo Air personnel.

The reports must also have a "print" option, in which the page is printed without unnecessary application menus, headers, logos, etc…

Searching for flights

The ReDo Air application has a module for searching available flights. This module is available to everyone, the user does not need to be logged on first.

When the application is accessed, the landing page shows a visually inviting screen that prompts the user to enter search criteria for looking up available flights. The search criteria include:

- How many seats the user would like to book
- The traveling class
- An airline company that is preferred
- An option to enter either a departure and destination location or global region
- The date of departure
- Optionally a date of return in case the user chooses to book a return flight as well

When the user presses the search button, results of all matching flights are shown with the following information:

- The price (this should be the price including margin and discounts)
- The amount of discount in case where a discount is applicable
- The exact departure and arrival times
- The airline company

The user can sort the list based on departure time, airline company and price.

When the user selects a flight from the list, a details page is shown, displaying all relevant information about the chosen flight, including:

- Number of seats
- Price for all tickets and per ticket
- Traveling class
- Times of departure and arrival
- Flight duration
- Airline company
- Destination and departure locations (with airport codes)
- …

The user is allowed to navigate back to the list page or select a "book now" option. When the "book now" option is selected, the booking procedure will be initiated.

Booking flights

Once the user activates the "book now" feature, logging on is required. The system remembers the user's selected flight after logging on. If the user is not known yet in the system, a registration procedure is executed.

The user will be presented with a number of payment options:

- Credit card
- Endorsement

If the user chooses to pay with credit card, a 10% discount is granted on top of any other discounts. The credit card number must be entered here alongside with an expiration date. Credit card information is then processed by a payment service, which either accepts or rejects the transaction. ReDo Air assumes here that rejection is not likely to happen, and in this case the transaction will be cancelled and the user will be redirected to the landing page. If credit card payment is accepted, the booking will immediately be marked with a status "Payment Succeed".

If the user chooses to pay with endorsement, the booking will still be registered, but marked

with "Payment Pending". Registering the offline payment through endorsement is out of scope.

After either type of payment, the user is shown an invoice, which includes a QR code with an URL to the transaction details (only accessible for the user if logged on). The invoice can also be printed which removes all page menus, headers and other irrelevant information. When, the transaction is complete, all booking information is registered in the database. At this point, the user can reference it back by means of the QR code and/or URL. The reporting tools will also include this information in the statistics.

Finally, the user will be sent an email (based on his/her registration details) showing the details of the invoice. Then the user is directed to a "thank you" page.

User access

Both partner users (airline administrative employees) and ReDo Air employees need to be logged on. Registration of the users is done through an interface with the ERP and HR systems that uploads the user data into the database, and is out of scope.

ReDo Air employees have access to different parts of the application than partner users:

- The flight administration module is available only to partners
- The location and price-override modules are available to ReDo Air employees only
- The reporting modules are available to both ReDo Air employees as partner users, with a number of restrictions.
- The search module is available to everyone and does not require loggin on first.
- The booking procedure is only available to users after logging on. Registration is required for this.
- Invoices can only be viewed by a registered user after logging on.

User experience

This application will be a very important tool for employees and partner employees, and we want the user interface to be inviting to use. The responsiveness when entering and managing the data will be a very important factor for users accepting the solution proposed. ReDo Air also wants the users to be able to view the pages reasonably well on tablets and smartphones.

Exporting bookings

Every day, a differential export is generated from booking information. This should generate an XML file, and publish the results to an export directory on the server running the

application. This XML file is used by the ERP software used by the book keeping department, which is out of scope.