ZIMMOS

Reservation Management Software Package Project

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# Project Task

Make an application, which will show the reservation list, enable the user to make a new reservation and to change or delete the existing one. The reservation subjects are *entities* – a rooms, offices, vehicles, sport fields, boats, massage parlors etc. Actually anything that can be reserved on certain amount of time can be an entity.

Besides the reservation management, the additional functionality is needed:

* Entity type configuration – the possibility of defining of the basic entity types.
* Creation of the entity list, monitoring of their states, and entity state management
* Creation of the client list
* Definition of the different application user levels, definition of user roles and tasks.
* Making of the different kind of reports.
* Design of the different financial plans that will influence the entity price.

# Projekat baze

Baza je Database Postgres SQL 8.4.

## Business

|  |  |  |
| --- | --- | --- |
| Field Name | Field Type | Field Description |
| id | serial, primary key |  |
| name | varchar(100) |  |
| description | text |  |
| company\_name | varchar(100) |  |
| Address | text |  |
| phone | varchar(50) |  |
| email | varchar(50) |  |
| contact\_first\_name | varchar(50) |  |
| contact\_last\_name | varchar(50) |  |
|  |  |  |

## entity\_type

|  |  |  |
| --- | --- | --- |
| Field Name | Field Type | Field Description |
| id | serial, primary key |  |
| name | varchar(100) |  |
| description | text |  |

## entity\_definition

|  |  |  |
| --- | --- | --- |
| Field Name | Field Type | Field Description |
| id |  |  |
| entity\_type\_id | int | link na tabelu tipova entiteta |
| name | varchar(100) |  |
| description | text | slobodan opis za rekord |
| code | varchar(10) | sifra definicije entiteta |

## entity - LISTA RASPOLOZIVIH OBJEKATA ZA IZNAMLJIVANJE

|  |  |  |
| --- | --- | --- |
| Field Name | Field Type | Field Description |
| id | serial, primary key | Broj objekta (int) |
| definition\_id | integer | Link na definiciju objekta (int) |
| status\_id | integer | referenca na tabelu statusa |
| sku | char | broj ili oznaka sobe, kancelarije itd. |

## reservation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | | Field Type | | Field Description |
| id | serial, primary key | |  | | |
| reservation\_code | varchar(10) | | Reservation unique identifier (varchar) | | |
| client\_id | integer | | Referenca na tabelu klijenata - nosilac rezervacije | | |
| status | enum | | (reserved, not shown, cancelled, in use, payed, etc.) | | |
| created\_at | timestamp\_without\_timezone(0) | |  | | |
| modified\_at | timestamp\_without\_timezone(0) | |  | | |
| financial\_plan\_id | int | | referenca na tabelu finansijskih planova | | |
|  |  | |  | | |

## reservation\_entity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| reservation\_id | | integer | | referenca na tabelu rezervacija | |
| entity\_id | | integer | | Referenca na tabelu soba | |
| guest\_id | | integer | | Referenca na tabelu klijenata | |
| start | | bigint (unix time) | | Date and time of start using the entity | |
| end | | bigint (unix time) | | Date and time of stop using the entity | |
| price \* | | double | | cena po jedinici koriscenja | |
| currency \* | | enum | | oznaka valute (uzima se iz globalnog servisa) | |
| time\_unit \* | | enum | | (min, hour, day) | |

\* Ove se vrenosti upisuju ako se zeli prepisivanje vrednosti definisanih finansijskim planom.

## status

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| value | | char | | opis statusa | |

## clients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| first\_name | | varchar (100) | | ime | |
| last\_name | | varchar (100) | | prezime | |
| address\_1 | | varchar (100) | | adresa 1 | |
| address\_2 | | varchar (100) | | adresa 2 | |
| city | | varchar (100) | | grad | |
| zipcode | | varchar (20) | | zip | |
| country | | varchar (100) | | zemlja | |
| phone | | varchar (100) | | telefon | |
| mobile | | varchar (100) | | mobilni | |
| fax | | varchar (100) | | fax | |
| email | | varchar (255) | | email | |

## users

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| username | | varchar(20) | | korisnicko ime | |
| password | | varchar(100) | | lozinka | |
| email | | varchar(255) | | email adresa | |
| role\_id | | int | | uloga | |

## role

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| name | | varchar(50) | | naziv | |
| description | | text | | opis | |

## task

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| name | | varchar(50) | | naziv | |
| description | | text | | opis | |

## role\_task

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| user\_role\_id | | int | | id role | |
| task\_id | | int | | id taska | |

## category

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| name | | varchar(100) | | ime kategorije | |
| description | | text | | opis kategorije | |
| parent\_id | | integer | | id parent kategorije | |

## entity\_category (tabela, koja objekat vezuje sa proizvoljnim brojem kategorija)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | integer | | referenca na tabelu entiteta | |
| category\_id | | integer | | referenca na tabelu kategorija | |

## feature

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| name | | varchar(100) | | ime | |
| description | | text | | opis | |

## features\_entity\_definitions (Tabela koja dodeljuje svojstva objektima)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| feature\_id | | integer | | referenca na tabelu features | |
| entity\_definition\_id | | integer | | referenca na tabelu definicija entiteta | |

## price

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| value | | double | | iznos | |
| currency | | enum | | enum iz globalne liste, oznake valuta | |
| description | | char(50) | |  | |
|  | |  | |  | |

## financial\_plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| name | | varchar(100) | | ime | |
| description | | text | | opis | |

## financial\_plan\_entity\_definition\_price

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| financial\_plan\_id | | int | |  | |
| entity\_definition\_id | | int | |  | |
| price\_id | | int | |  | |
| time\_unit | | enum | | (min, hour, day) | |

## attribute

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| attribute\_id | | serial, primary key | |  | |
| attribute\_code | | char(20) | |  | |
| label | | char(50) | |  | |
| type | | char(20) | |  | |
| sort\_order | |  | |  | |

## attribute\_option

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| attribute\_id | | int | |  | |
| value | | int | |  | |
| text | | chart(50) | |  | |

## entity\_type\_attribute

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_type\_id | | int | |  | |
| attribute\_id | | int | |  | |

## entity\_value\_int

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | int | |  | |

## entity\_value\_char

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | varchar(255) | |  | |

## entity\_value\_double

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | double | |  | |

## entity\_value\_datetime

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | timestamp | |  | |

## entity\_value\_text

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | text | |  | |

## entity\_definition\_value\_int

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | int | |  | |

## entity\_definition\_value\_char

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | varchar(255) | |  | |

## entity\_definition\_value\_double

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | double | |  | |

## entity\_definition\_value\_datetime

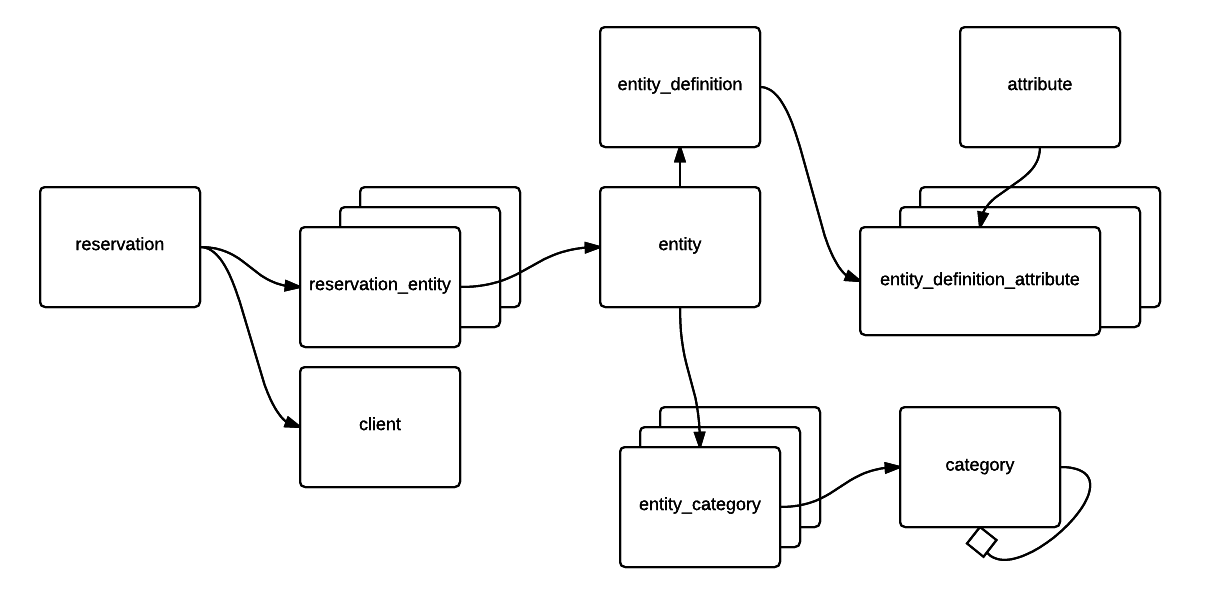
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | timestamp | |  | |

## entity\_definition\_value\_text

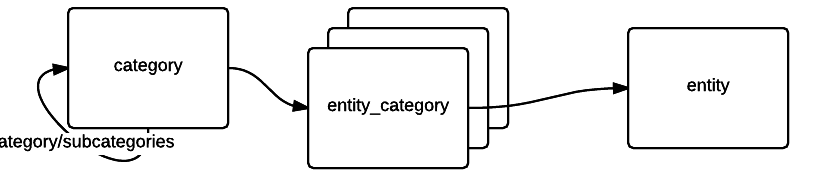
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Type | | Field Description | |
| id | | serial, primary key | |  | |
| entity\_id | | int | |  | |
| entity\_defintion\_id | | int | |  | |
| attribute\_id | | int | |  | |
| value | | text | |  | |

# Use Cases – Views

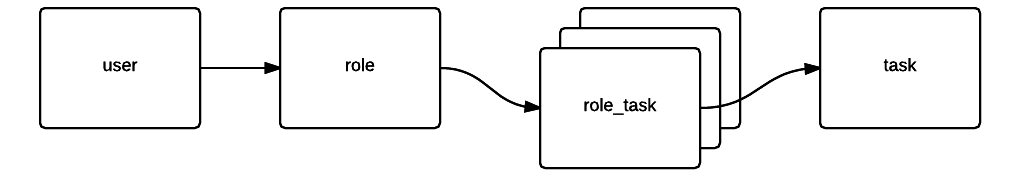
## Pravljenje rezervacije



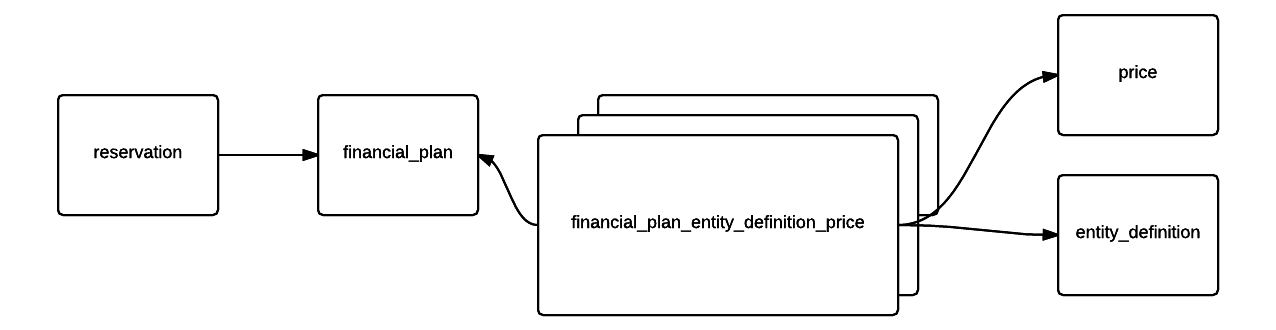
## Klasifikacija entiteta u kategoriju



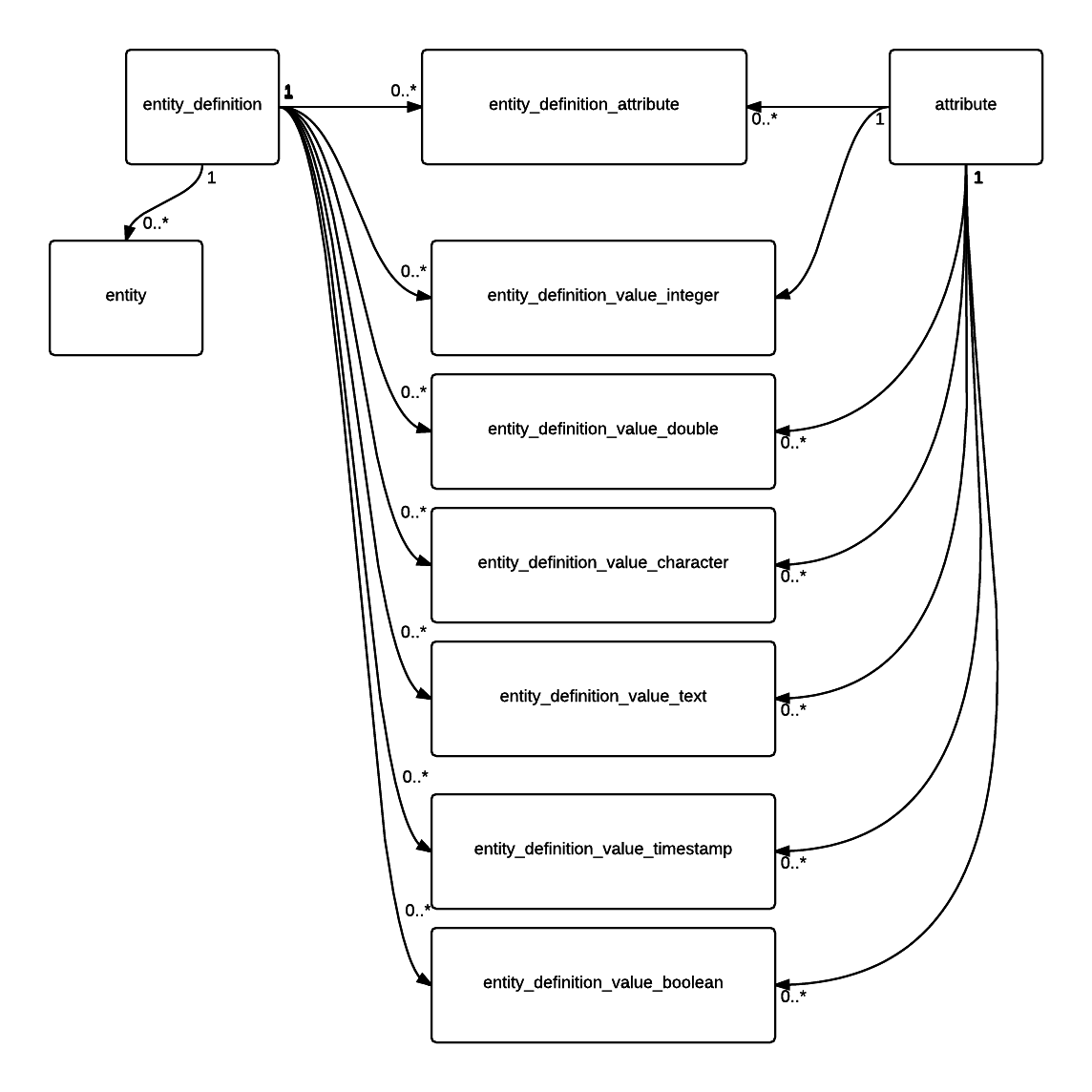
## Dodavanje novog user-a



## Finansijski plan i cene



## Povezivanje entiteta i atributa



# Kategorizaija korisnika, uloge i zadaci

Potrebno je definisati razne nivoe korisnika u zavisnosti od njihovih uloga i dodeliti im privilegije za odredjene taskove u okviru aplikacije.

Potrebna su na bar tri nivoa korisnika:

1. Administrator
   1. Konfiguriše sistem
      1. Formira i uređuje listu tipova objekata (tip -> gruba podela, primer. tipovi su – soba, bungalov, brod, kancelarija, sportska sala itd.), dodaje, menja, briše tipove.
      2. Formira i uređuje listu definicija entiteta (definicija -> finija podela, primer: jednokrevetna, dvokrevetna, trokrevetna soba ili apartman), dodaje, menja, briše definicije objekata.
      3. Konfiguriše mail-adresu
   2. Konfiguriše korisnike sistema
      1. Dodaje, menja, blokira, briše nove korisnike
      2. Dodaje, menja, blokira i briše prvilegije korisnika
2. Power User (Manager)
   1. Formira i uredjuje listu objekata. Dodaje, menja ili briše objekte, koji pripadaju jednoj od postojećih definicija u bazi
   2. Uredjuje i menja finansijski plan, dodaje nove finanskijske planove.
   3. Pregleda izveštaje
   4. Konfiguriše nove izveštaje
   5. Ima uvid u bazu klijenata
   6. Generiše poruke sa novostima za klijente.
   7. Ima uvid u zauzetost(rezervisanost) resursa po vremenskom domenu.
   8. Ima uvid u trenutno stanje resursa (spremni, u sredjivanju, van funkcije itd.)
   9. Može da privremeno ili permanentno poništi rezervaciju.
3. User
   1. Pravi novu rezervaciju, menja ili poništava postojeću.
   2. Unosi novog korisnika/klijenta, menja podatke o korisniku/klijentu.
   3. Ima uvid u zauzetost(rezervisanost) resursa po vremenskom domenu.
   4. Ima uvid u trenutno stanje resursa (spremni, u sredjivanju, van funkcije itd.)

# Korisnički modul (User)

## Glavni

### Opis

#### Header

Linkovi na listu soba (Objekata), klijenata, log out.

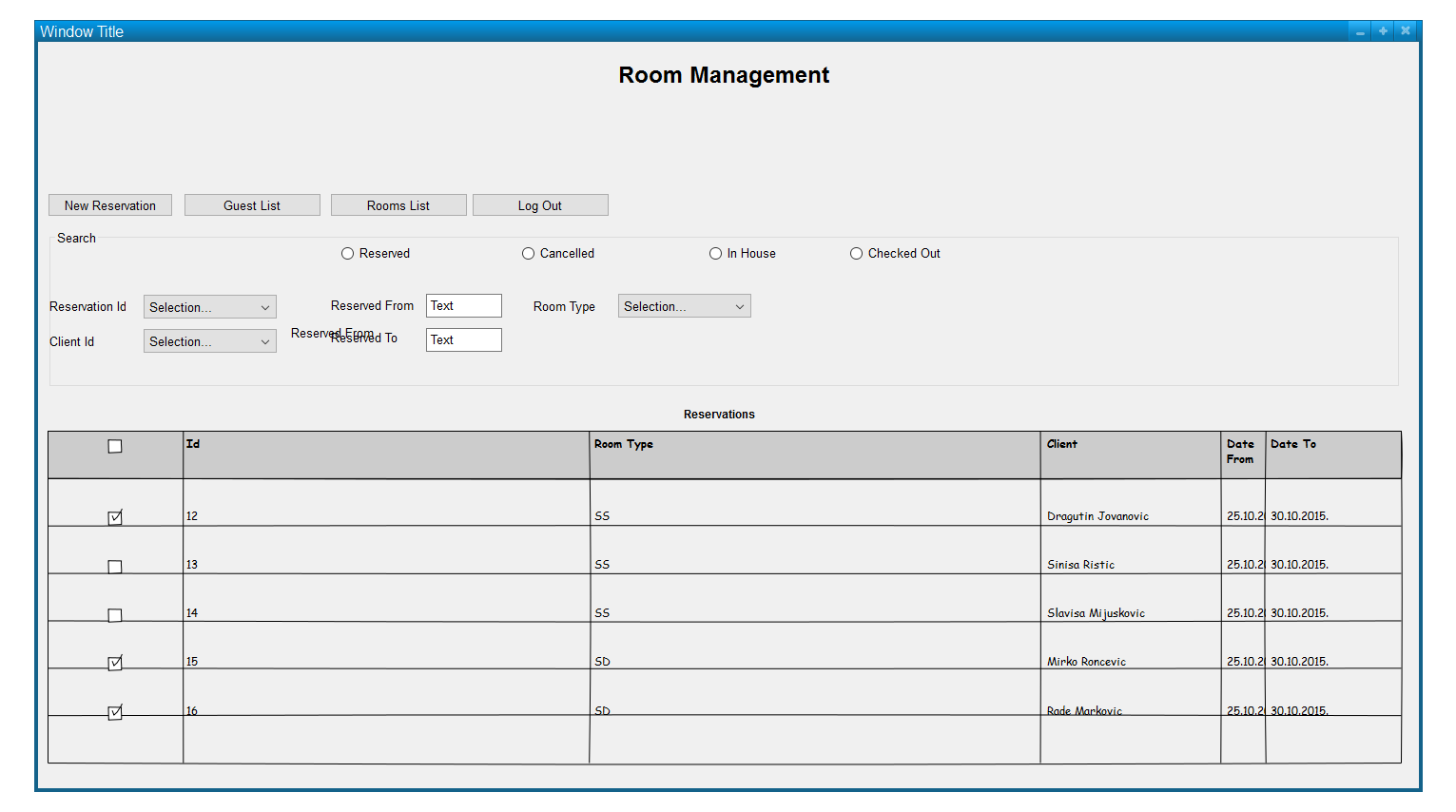
#### Gornji deo ekrana

U gornjem delu ekrana polja za pretragu po datumu dolaska, datumu odlaska, imenu klijenta, broju rezervacije, statusu rezervacije.

#### Donji deo ekrana

Lista postojećih rezervacija.

### Prikaz



Slika 1. Glavna forma.

## Nova rezervacija

### Napredno – forma sa kontrolom

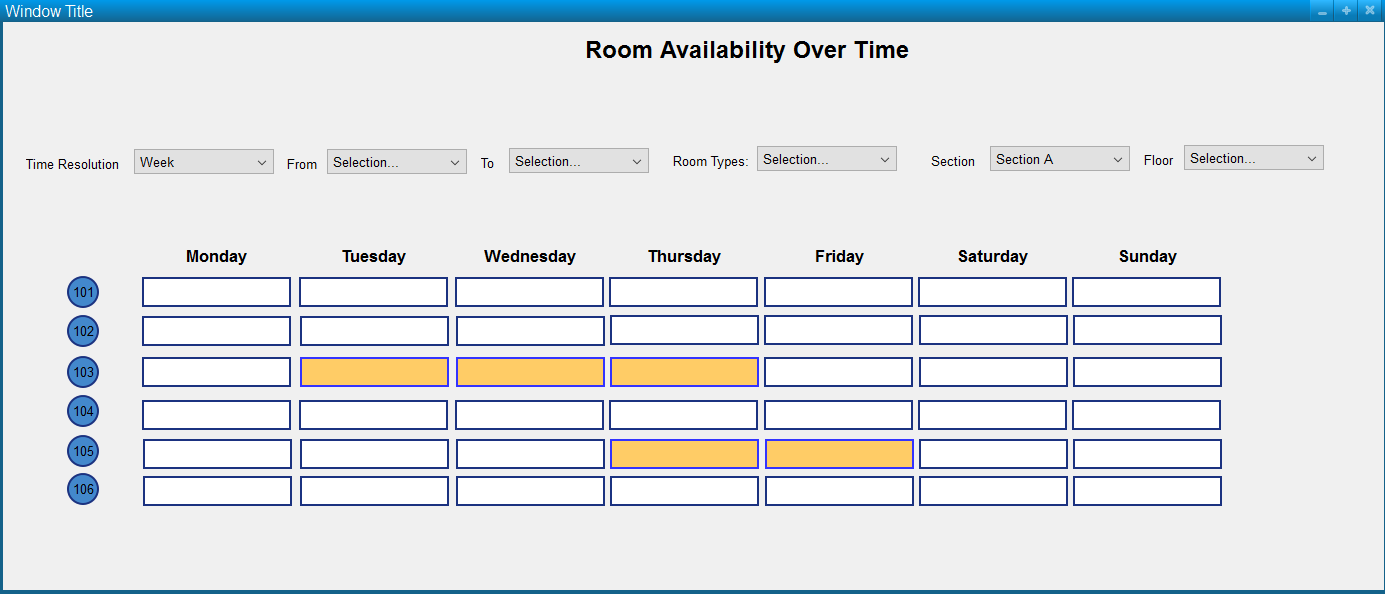
#### Opis

Ovo je napredniji način unosa, koji podrazumeva korišćenje grafičke kontrole prikaza i interakcije sa sobama.

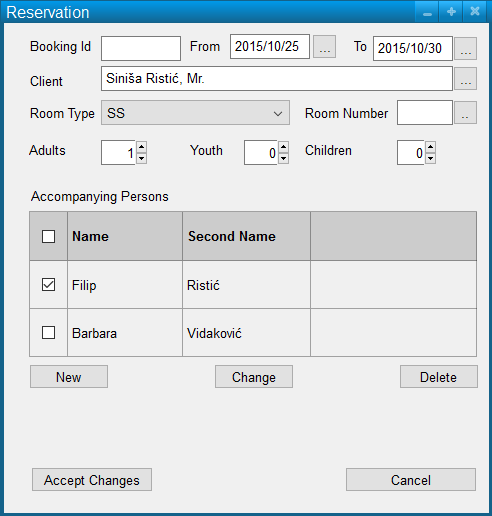
Sastoji se iz dva koraka:

1. Prikaz forme sa kontrolom, na kojoj se vide zauzete sobe ofarbane u drugu boju. Dvodimenzionalni dijagram, na vertikalnoj osi su predstavljene sobe a na horizontalnoj osi je predstavljenja njihova zauzetost u vremenskom rasponu. Vremenska rezolucija se može menjati selekcijom opcije iz combo-box-a u headeru (dani, sati, minuti itd.) Selekcijom kockice i drag-ovanjem miša po opsegu se rezerviše ovaj opseg. Po puštanju miša se pojavljuje forma za rezervaciju, sa već unešenim datumom dolaska i odlaska, kao i tip sobe.
2. Forma za rezervaciju
   1. Izbor klijenta
   2. Izbor sobe (tip sobe, a po dolasku klijenta dodela broja sobe)
   3. Datum(i vreme) početka korišćenja
   4. Datum(i vreme) prestanka korišćenja
   5. Broj osoba (odrasli, mladi, deca)
   6. Prateći gosti (lista pratećih gostiju)
   7. Akcija – cancel
   8. Akcija – check out
   9. Check In akcija se odradjuje automatski pri dodeli broja sobe.

#### Dizajn



Slika 2. Forma sa grafičkom kontrolom za rezervaciju soba



Slika 3. Forma za rezervaciju

### Osnovna forma (bez kontrole)

Ukoliko nema forme sa kontrolom, unos nove rezervacije ne ide u dva koraka već samo u jednom i to u poslednjem od dva koraka navedena u prethodnom pasusu.

Podaci o rezervaciji se unose samo preko formulara na slici 3.

## Pregled klijenata

Kliktanjem na button (...) pored tekst entrija sa imenom klijenta (slika 3. polje „Client“). Otvara se forma za prikaz i pretragu postojećih klijenata, koja ima mogućnost unosa novog klijenta.

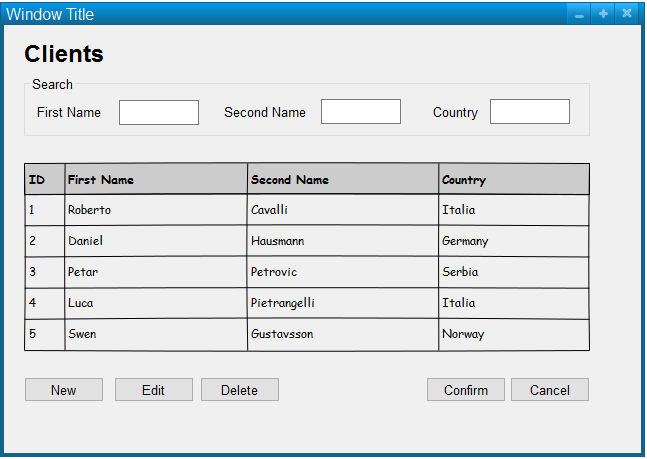
### Opis

U gornjem delu se nalaze polja po kojima će se vršiti pretraga klijenata (zasad napr. ime, prezime, zemlja).

U donjem delu je lista registrovanih klijenata. Izborom button-a New, Edit, Delete, dodaju se novi, edituju ili brišu postojeći. Izborom tastera „Confirm“ potvrdjuje se selekcija klijenta iz liste, koji će zatim biti unesen u formu za novu registraciju i zatvara se forma. Izborom button-a „Cancel“ samo se zatvara forma.

Editovanje klijenta se vrši preko forme koja će biti opisana u sledećem odeljku (3.4 Uređivanje klijenata).

### Prikaz

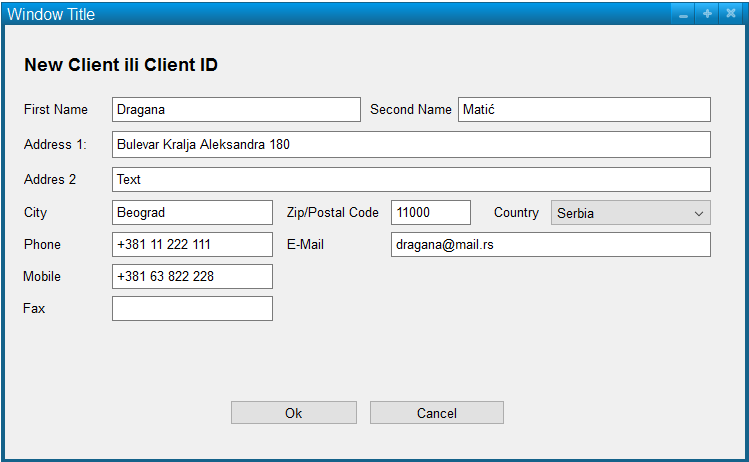


Slika 4. Lista klijenata

## Uređivanje podataka klijenta

Selekcijom opcije „New“ ili „Edit“ u prethodnoj formi otvara se forma sa unos / izmenu podakata klijenta.

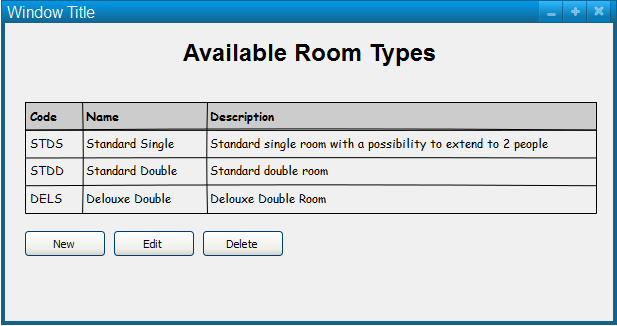
### Prikaz



Slika 5. Unos/Izmena podataka o klijentu.

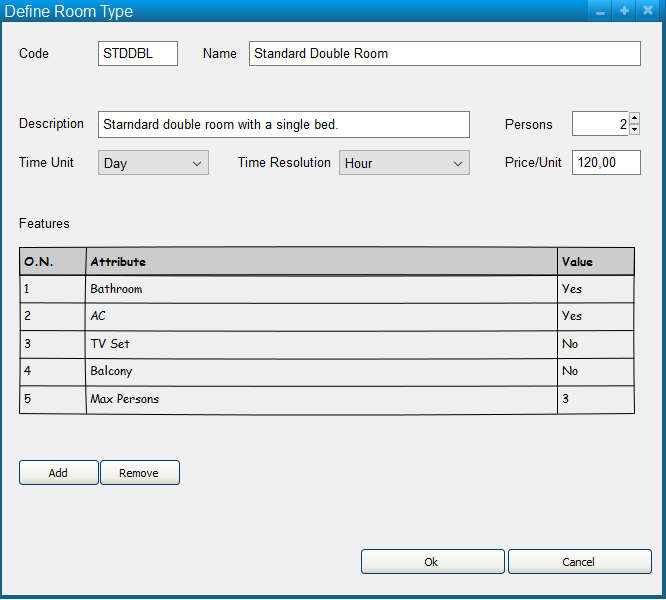
# Korisnički Modul (Administrator)

## Lista definicija objekata



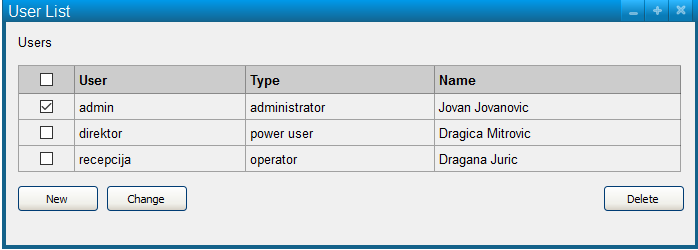
Slika 7. Lista raspoloživih tipova objekata

## Uređivanje definicije objekta



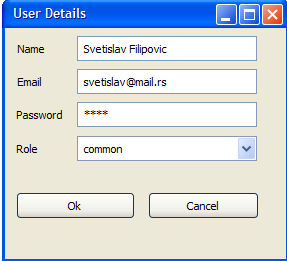
Slika 6. Definicija tipa sobe

## Pregled liste korisnika



Slika 8. Pregled liste korisnika Sistema

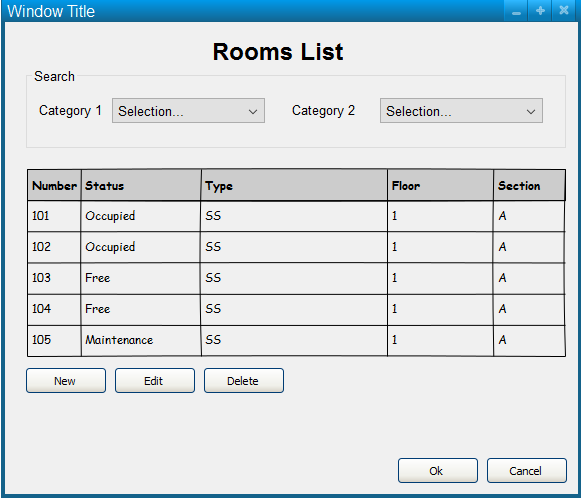
## Promena podataka korisnika



Slika 9. Izmena podataka korisnika

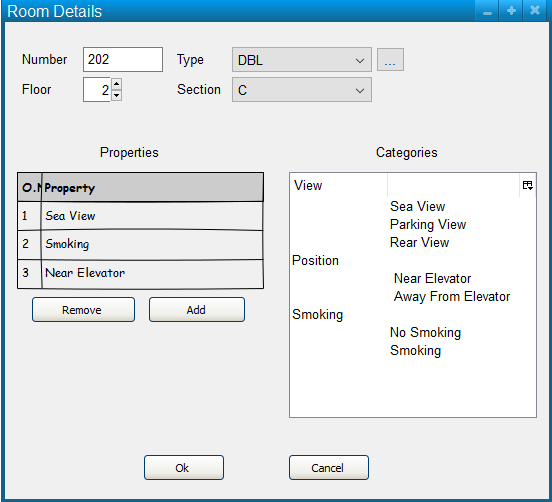
# Korisnički modul (Power User)

## Lista soba



Slika 10. Spisak raspoloživih soba

## Konfiguracija sobe



Slika 11. Konfiguracija sobe