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Department of Computer Science Institute for System Architecture, Chair for Computer Networks

Application Development for Mobile and Ubiquitous Computing

Seminar Task

Final Presentation

GroupNo. 15
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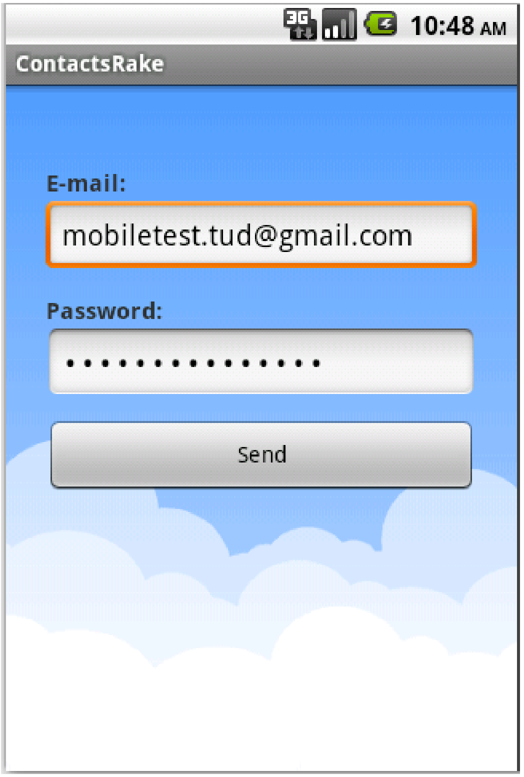
Concept

Mobile application to:

- Bridge old-school services into Web 2.0
- Build a third-party API by parsing
- Allow almost seamless integration for user who cannot
- change their old emails
- Keep all contacts in one place

Application Scenario

- user sends request with login and password to our server



mobiletest.tud@gmail.com

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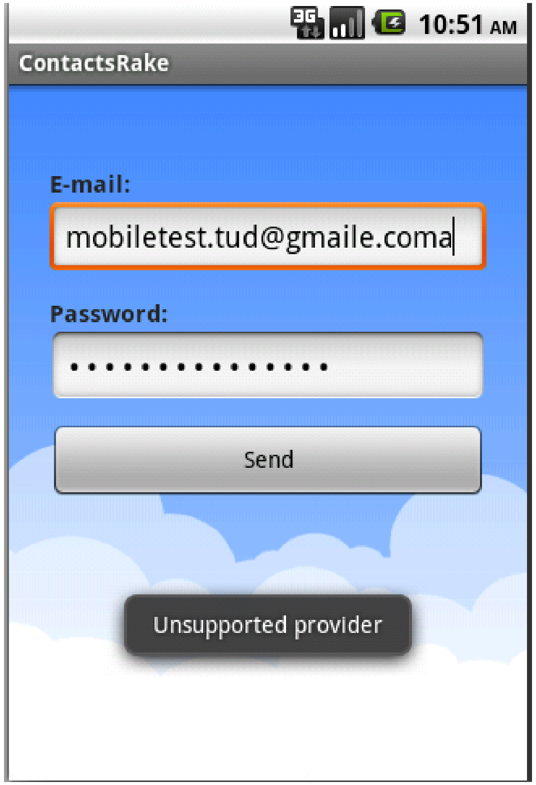

mobiletest.tud@gmaile.coma

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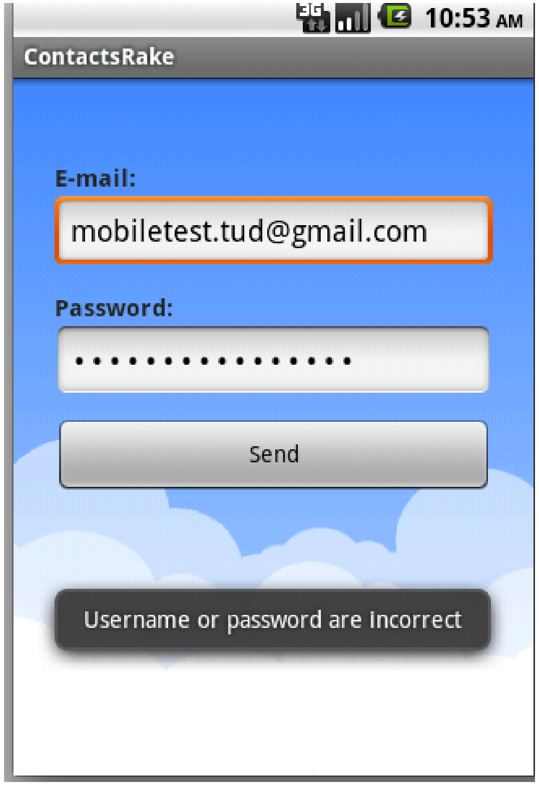
Unsupported provider

Unsupported provider



mobiletest.tud@gmail.com

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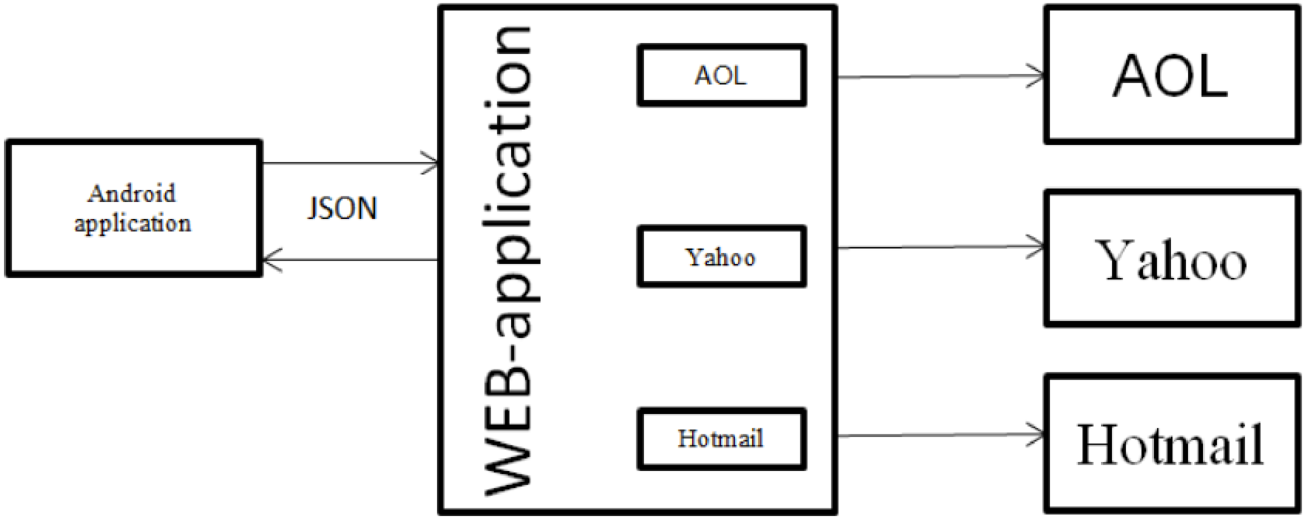
Username or password are incorrect

Incorrect login or password

Application Scenario

- server sends request to mail server and receives list of contacts
- server generates JSON response with contacts and sends response to the application



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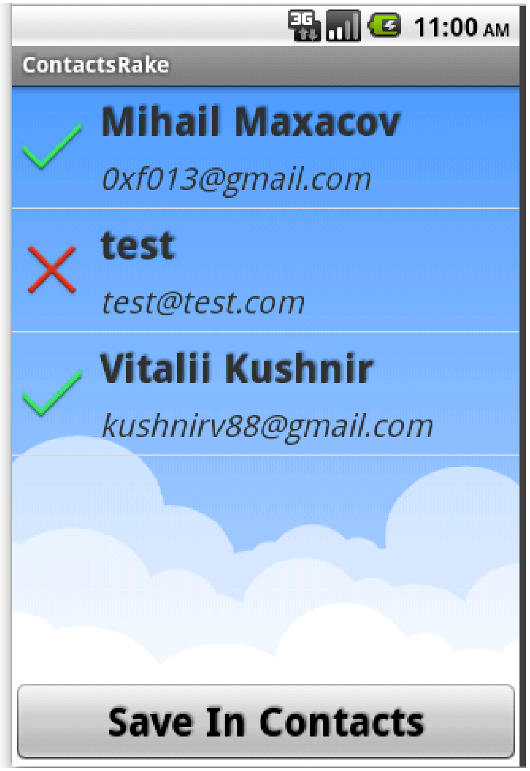
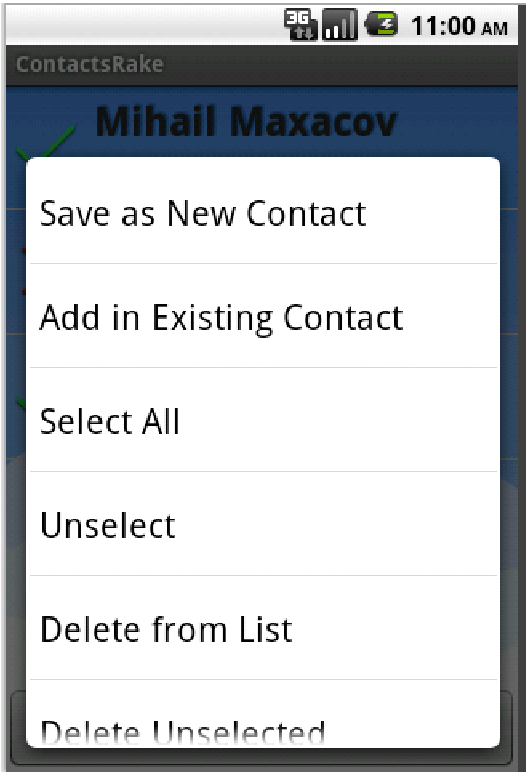
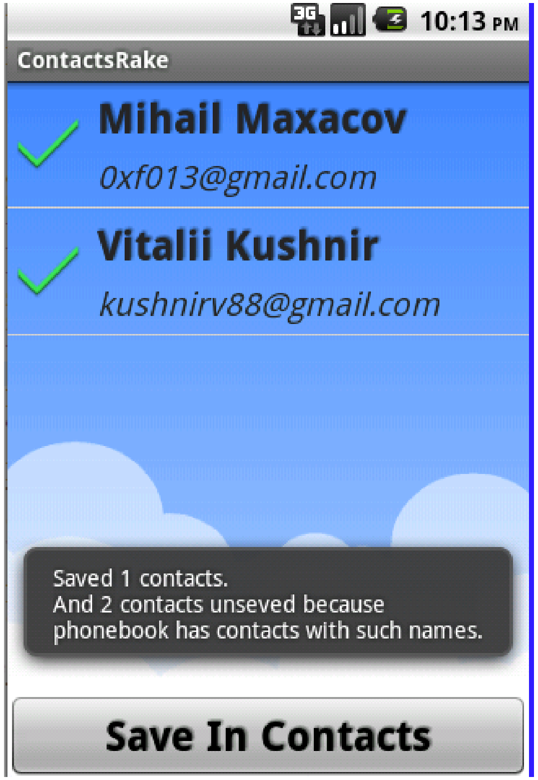
Application Scenario

- application creates ListView with contacts
- user decides what to do with contacts







Saved 1 contacts.
And 2 contacts unseved because
phonebook has contacts with such names.

Application Scenario

When Server received correct login and password:

```
{"status":"ok",
"content":[{"name":"Mihail Maxacov","email":"0xf013@gmail.com"},
        {"name":"Vitalii Kushnir","email":"kushnirv88@gmail.com"}]}
```

When Server received incorrect login and password

```
{"status":"error","message":"Username or password are incorrect"}
```

If Server does not support such provider:

```
{"status":"error","message":"Unsupported provider"}
```

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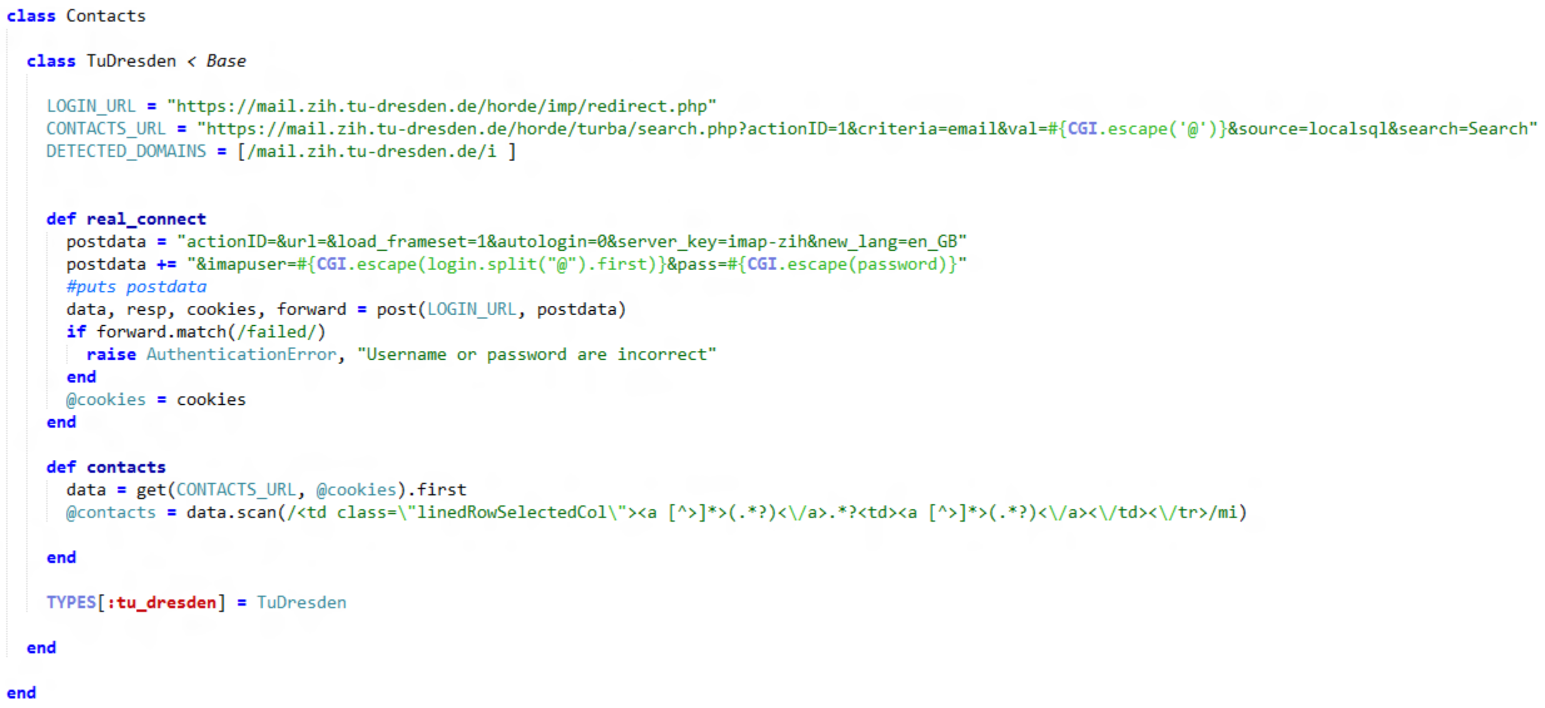
Example

- mail.zih.tu-dresden.de Parser



```ruby
class Contacts

  class TuDresden < Base

    LOGIN_URL = "https://mail.zih.tu-dresden.de/horde/imp/redirect.php"
    CONTACTS_URL = "https://mail.zih.tu-dresden.de/horde/turba/search.php?actionID=1&criteria=email&val=#{CGI.escape('@')}&source=localsql&search=Search"
    DETECTED_DOMAINS = [/mail.zih.tu-dresden.de/i ]


    def real_connect
      postdata = "actionID=&url=&load_frameset=1&autologin=0&server_key=imap-zih&new_lang=en_GB"
      postdata += "&imapuser=#{CGI.escape(login.split("@").first)}&pass=#{CGI.escape(password)}"
      #puts postdata
      data, resp, cookies, forward = post(LOGIN_URL, postdata)
      if forward.match(/failed/)
        raise AuthenticationError, "Username or password are incorrect"
      end
      @cookies = cookies
    end

    def contacts
      data = get(CONTACTS_URL, @cookies).first
      @contacts = data.scan(/<td class=\"linedRowSelectedCol\"><a [^>]*>(.*?)<\/a>.*?<td><a [^>]*>(.*?)<\/a><\/td><\/tr>/mi)

    end

    TYPES[:tu_dresden] = TuDresden

  end

end
```

Technologies

- For a front-end we employ Android 2.3
- The web-app is a Sinatra application, which is a lightweight Ruby framework.
- Ruby itself was chosen due to its easily comprehensible nature and some facilitating plugins for contacts import.

Challenges

- Fragmentation of Android smartphones:
  - application should look the same on the different devices
- Limited bandwidth:
  - generate as little traffic as possible
- Usability:
  - intuitive and fast UI on limited screen space
- Reduce the use of resources on device
  - No parsing on the client

Limitations

- Up-to-date parsers
- Possible breaking of the terms of use
- Several speed drops
  - Request to server
  - Server request to email provider
  - Parsing (in case of big address books)
- Possible data missmatch (encoding)
- Functionallity
  - There is really not much you could do with emails

Use Cases

- Login
- View contacts list
- Save contacts in bulk
- Manage singular contact
- Conflict decision

Pitfalls and Experience

- Study Android API
  - (tricky sometimes)
- Smooth JSON integration
- Parse HTML (worst)
  - Sometimes parse JavaScript
- HTTP requests handling
  - Cookies, tokens
- Error handling
  - No connection, wrong domain etc.