

Easy Deposit

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Outline

- Introduction
- Abstract
- Existing System
- Literature Survey
- System Design
- Module Description
- Software Tools and Techniques
- Implementation
- Conclusion
- References

Introduction

- Smart phones have greatly penetrated the population, and they can be used to solve many problems.
- One such problem faced by daily wage workers is their inability to make any savings.
- We intend to solve this with our project.

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Abstract

- The idea is to introduce a mechanism for depositing cash in the bank accounts using recharge coupons.
- The user can buy coupons of various denominations.

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Existing System

- Cash Deposit Machines are the most common solution.
- The user may deposit money to their accounts using CDMs.
- Many banks provides CDM service.

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Literature Survey

- Generation of Pseudo Random Numbers is required for coupon generator.
- The system should be resistant to active attacks.
- In order to do this, select a set of initial Random Number set called feed.
- Can use Mersenne Twister (MT) algorithm for the same.

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¹ Mersenne Twister: A 623-Dimensionally Equidistributed Uniform Pseudo-Random Number Generator

Literature Survey

- Implements SSL protection for RESTful API, in order to avoid Data Hijacking attacks.
- Security certificates are maintained by Apache HTTPS server for SSL implementation.
- We use software based Approach.

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Literature Survey

- The API of backend server is implemented using RESTful API.
- Uses Node.JS for platform.
- Application data can be represented in JSON (Javascript Object Notation) format.

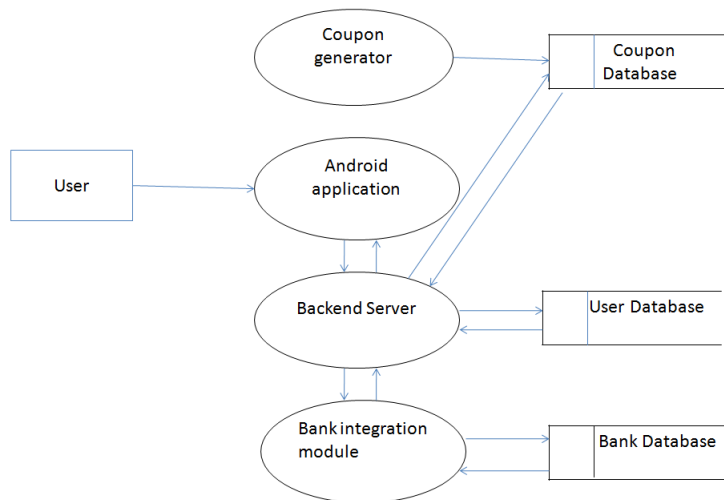
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³ A Resource Oriented Architecture for the Web of Things.

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Data Flow Diagram level 1



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Module Description

The system consists of 4 modules

- Android application
- Backend Server
- Coupon generator
- Bank integration module

Android application

- The application communicates with the Backend server using REST call.
- The response from the Backend server to Android application are provided in JSON format.

Backend Server

- Backend server is used to serve data to the front end applications, such as the Android application.
- The application provides data and queries the server using REST calls.
- The Backend server is hosted on a fully equipped cloud infrastructure with secure certificates.

Coupon generator

- Coupon generator is used to generate unique coupon codes by a discrete algorithm that avoids collision.
- The coupon generator also connects to the server to save the generated coupons to the data storage.

Bank integration module

- Bank integration module is the system that is built to mock the working of a bank.
- This is used to get the information about the users bank account such as their account balance.
- The backend server contacts this module using REST requests.

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Hardware Requirements

- Server
 - Processor : Any Quad Core (> 3 GHz)
 - Memory : 8 GB or higher
 - Disk : 20 GB or higher
- Android Application
 - Processor : Any
 - Memory : 1 GB or higher

Software Requirements

- Android application
 - Android Studio
- Backend server
 - IDE : WebStorm
 - OS : Ubuntu(Linux)

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Server Configuration

```

ss@ubuntu-small:~$ pm2 show app
Describing process with id 0 - name app

status      online
name        app
restarts    0
uptime      26h
script path /home/ss/shrey/Shrey-node/app.js
script args N/A
error log path /home/ss/.pm2/logs/app-error-0.log
out log path  /home/ss/.pm2/logs/app-out-0.log
pid path     /home/ss/.pm2/pids/app-0.pid
interpreter  node
interpreter args N/A
script id    0
exec cwd     /home/ss/shrey/Shrey-node
exec mode    fork_mode
node.js version 4.2.6
watch & reload X
unstable restarts 0
created at   2017-02-28T14:08:34.208Z

Revision control metadata

revision control  git
remote url       https://github.com/sabeersulaiman/Shrey-node.git
repository root  /home/ss/shrey/Shrey-node
last update      2017-03-01T16:40:08.494Z
revision         a5c83f586e99bb79a071cbc7b3f1276f2842c0dd
comment          server setup and mongodb sync
branch           master

Code metrics value

Loop delay  0.53ms

Add your own code metrics: http://bit.ly/code-metrics
Use "pm2 logs app [--lines 1000]" to display logs
Use "pm2 monit" to monitor CPU and Memory usage app
ss@ubuntu-small:~$

```


NodeJS Backend

http://shrey.ssabeer.c x + No Environment

GET http://shrey.ssabeer.com/REST/banks/58b65ece0107505d5360b74d Params Send Save

Authorization Headers (3) Body Pre-request Script Tests Code

Type Basic Auth Clear Update Request

Username 5455454545 The authorization header will be generated and added as a custom header

Password **** ☐ Save helper data to request

☐ Show Password

Body Cookies Headers (7) Tests Status: 200 OK Time: 305 ms

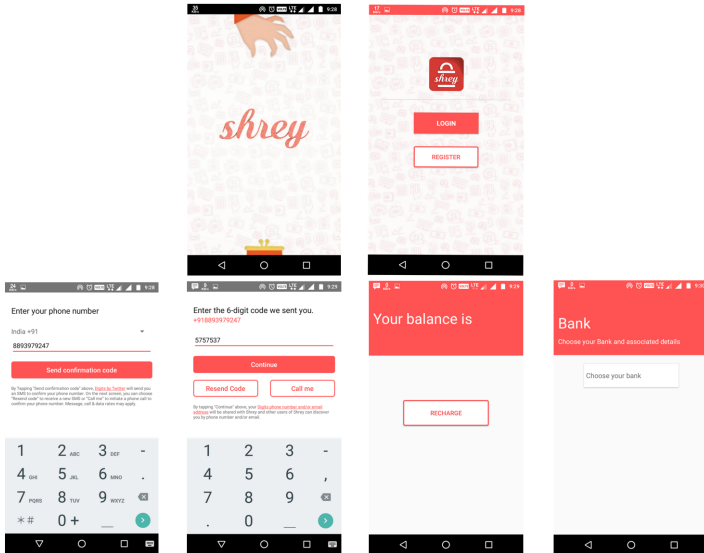
Pretty Raw Preview JSON

```

1  {
2    "id": "58b65ef952b4c44a995cad",
3    "name": "Bank of India",
4    "period_from": null,
5    "period_to": null,
6    "status": true,
7    "msg": "Negative new info",
8    "fields": [
9      "ifsc",
10     "Account Number"
11   ]
12 }
13
14 {
15   "id": "575150dc06696d37690c7f0b",
16   "name": "Bank One of Kerala",
17   "period_from": "2016-03-12T00:00:00.000Z",
18   "period_to": "2016-03-12T00:00:00.000Z",
19   "status": true,
20   "msg": "Get an account at Bank One of Kerala :)",
21   "fields": [
22     {
23       "key": "ifsc",
24       "field": "Account Number"
25     },
26     {
27       "key": "ifsc",
28       "field": "ifsc"
29     }
30   ]
31 }
32 ]
  
```

Navigation icons: back, forward, search, etc.

Android Application



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Conclusion

- Our project will serve as a way to easily deposit money in bank accounts.
- Its cloud based architecture will help to accommodate a large amount of users.

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- [1] Dominique Guinard, Vlad Trifa, Erik Wilde "A Resource Oriented Architecture for the Web of Things ", *Internet of Things (IOT) Conference, April 2011*.
- [2] MAKOTO MATSUMOTO, TAKUJI NISHIMURA "Mersenne Twister: A 623-Dimensionally Equidistributed Uniform Pseudo-Random Number Generator", *ACM Transactions on Modeling, October 2010* .
- [3] Wesley Chou "Inside SSL: Accelerating Secure Transactions", *ITPro IEEE, September / October 2002*.

Thank You