Mobile Interaction

Auditorium Exercise 8

Human-Computer Interaction Group

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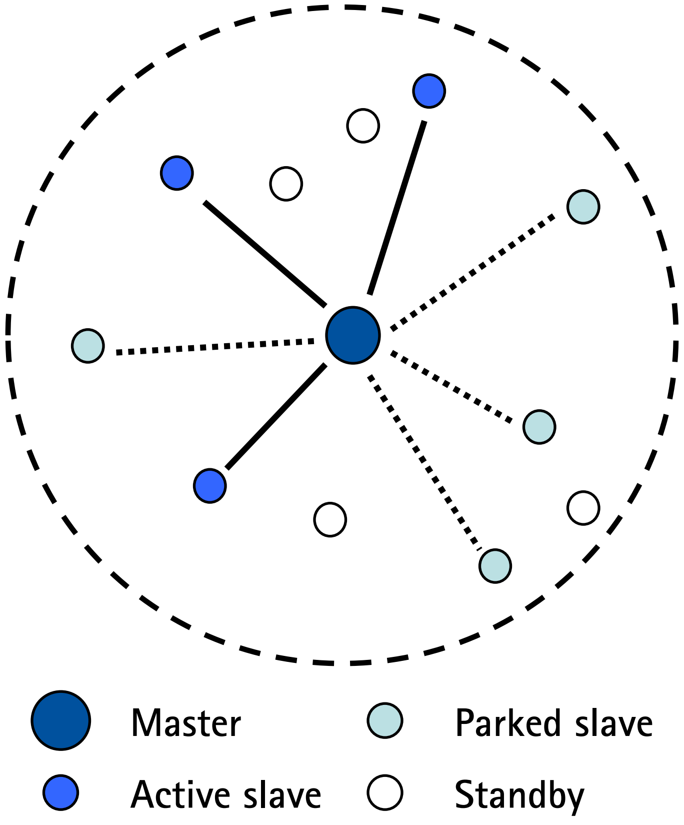
LIVE SESSION

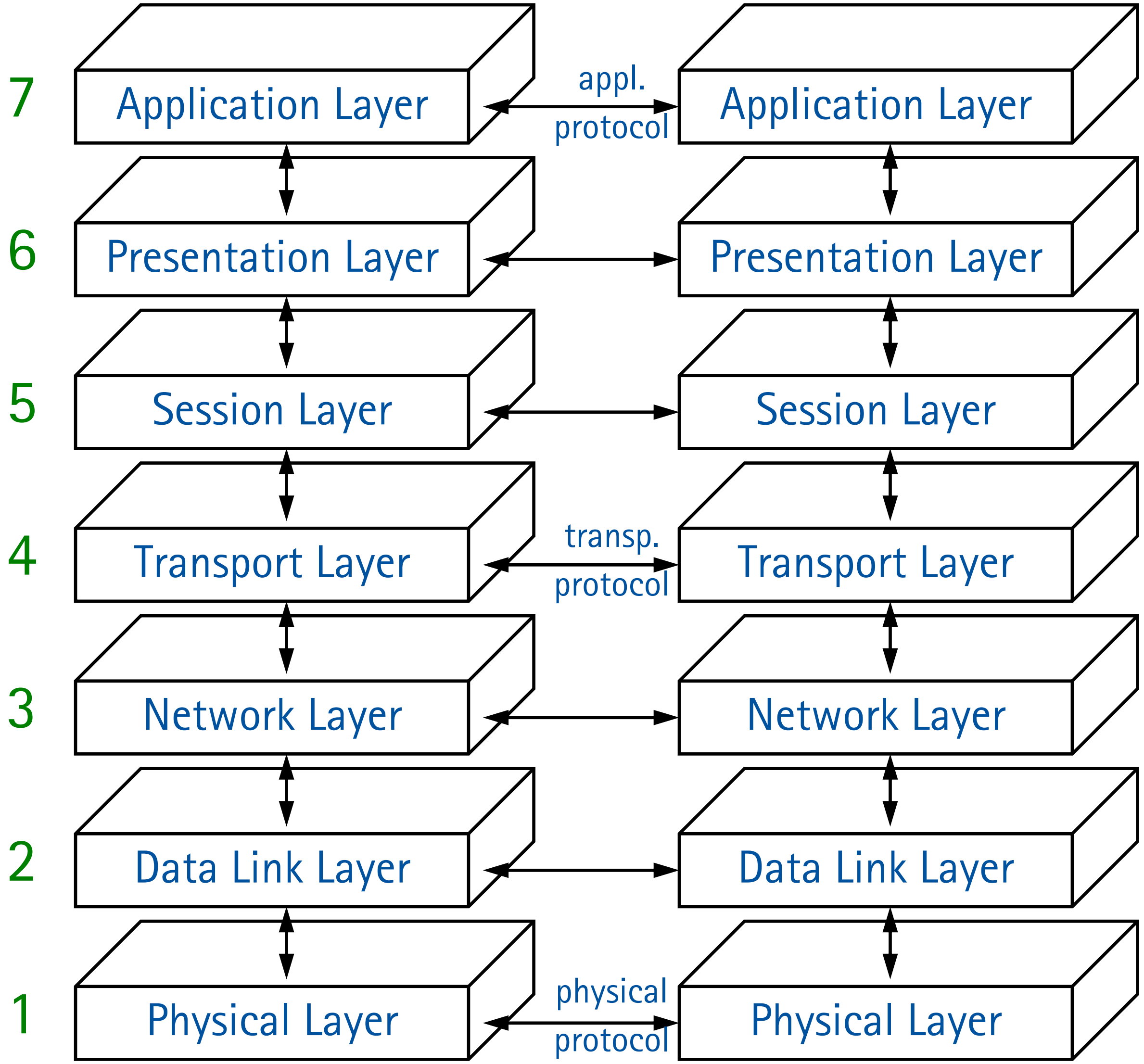
Design goals of Bluetooth?

- Technology that could replace cable
- Should allow spontaneous network building
- Low cost
- Small form factor
- Low power consumption
- Security

What does the diagram show?



Internet Protocols in OSI Hierarchy

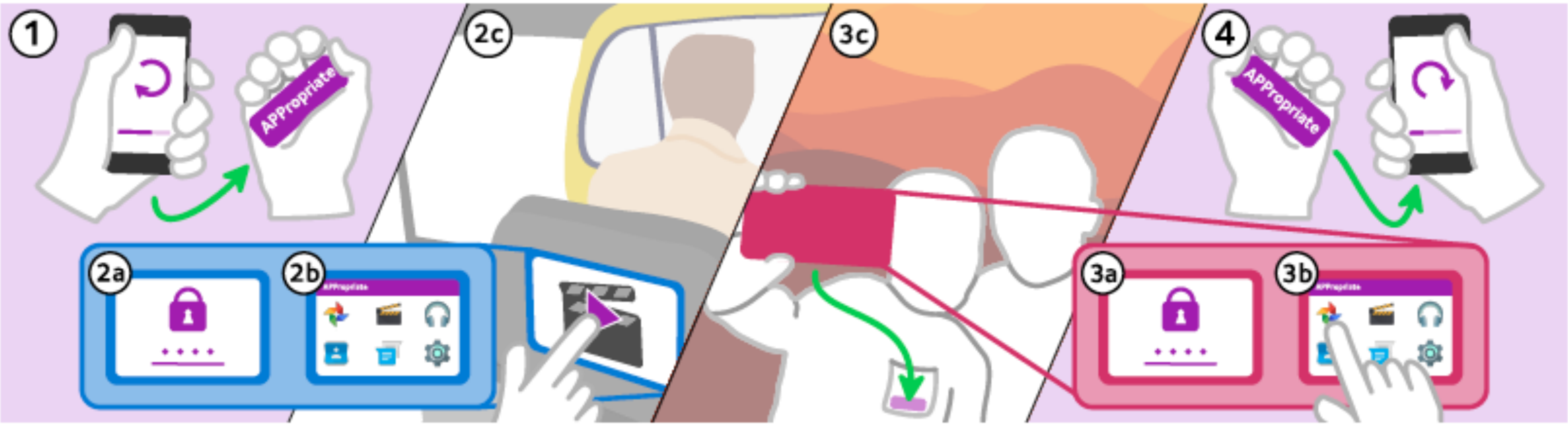


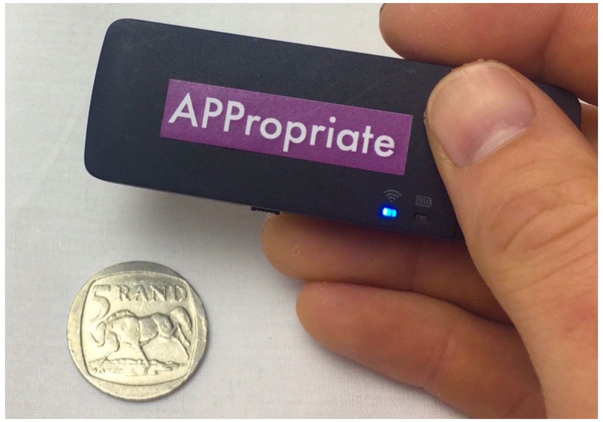
7	Application Layer	appl. protocol	Application Layer	http, ftp, telnet, smtp, dns, …
6	Presentation Layer		Presentation Layer	RPC (remote procedure call)
5	Session Layer		Session Layer	RPC
4	Transport Layer	transp. protocol	Transport Layer	TCP, UDP
3	Network Layer		Network Layer	IP
2	Data Link Layer		Data Link Layer	CSMA/CD
1	Physical Layer	physical protocol	Physical Layer	coaxial cable, radio

Note: Silly way of remembering names of layers “**Please-Do-Not-Touch-Soni’s-Pet-Anne**”

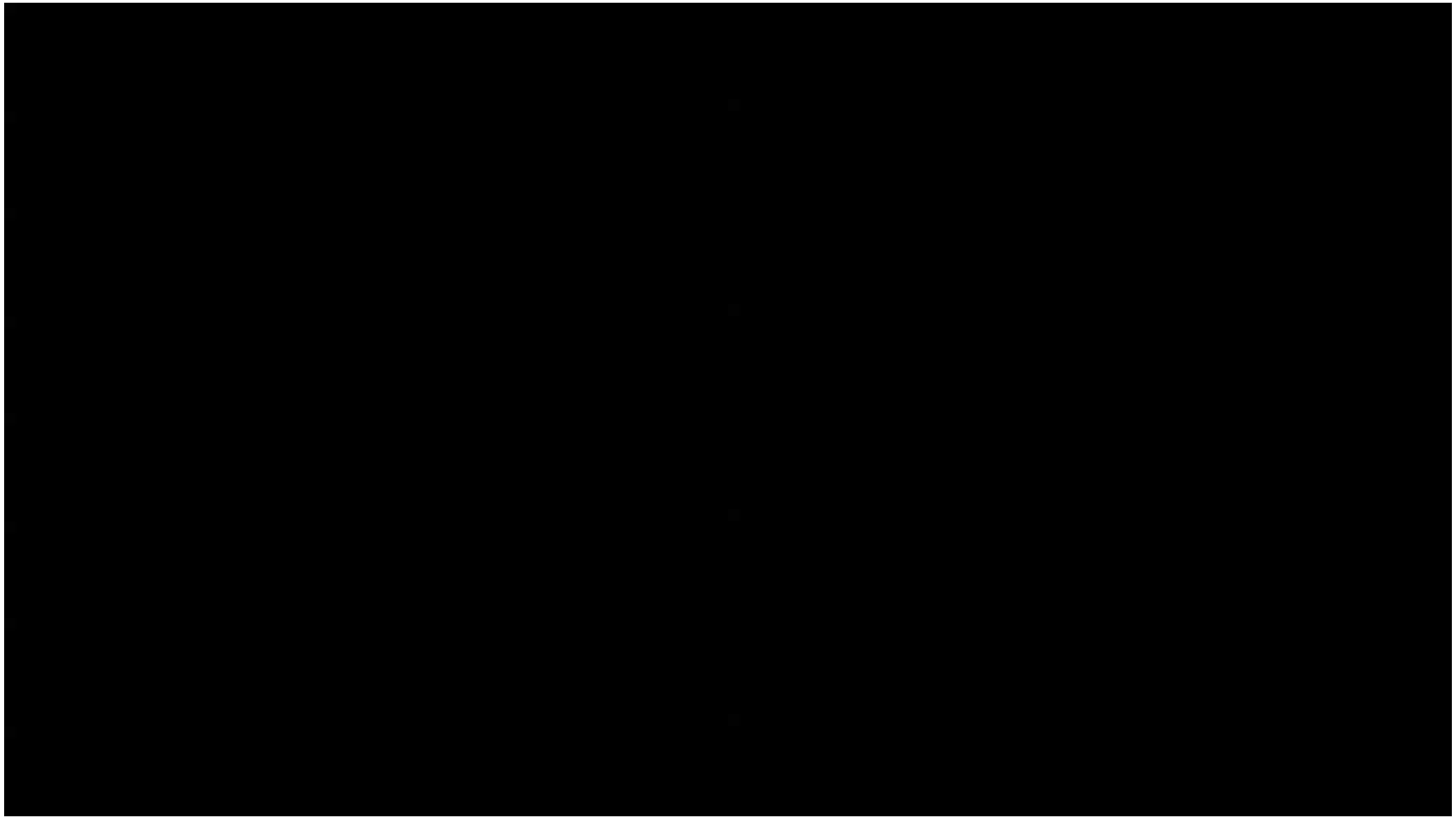
Make Yourself at Phone: Reimagining Mobile Interaction

- Allow emergent users to annex other Andriod device for own use
- APPropriate: small, cheap storage pod, designed to be easily carried in a pocket
- Purpose:
  - To hold a copy of the local content an owner has on their mobile, liberating from carrying a phone.
  - Allow users to use another device that provides advantages over their own.





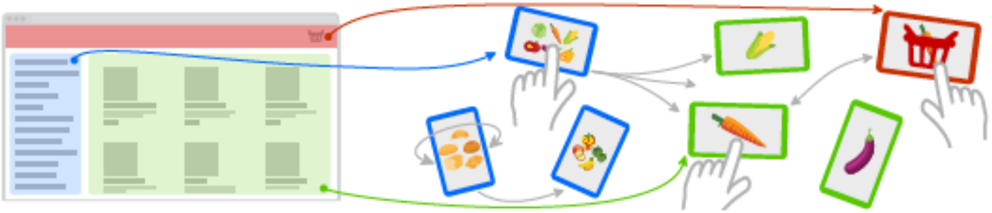
Prototype

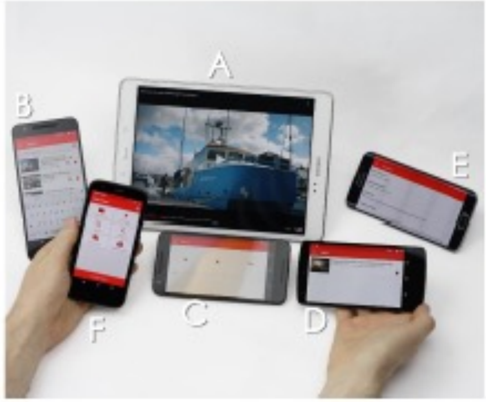


https://doi.org/10.1145/3173574.3173981

Better Together: Disaggregating Mobile Services for Emergent Users

- Mainstream mobile interactions are focused around individual devices.
- Better Together – a framework for disaggregating services, splitting interaction elements over separate mobiles.
- Probes:
  - Collocated group based shopping list making splits
  - YouTube into its constituent parts across separate mobiles

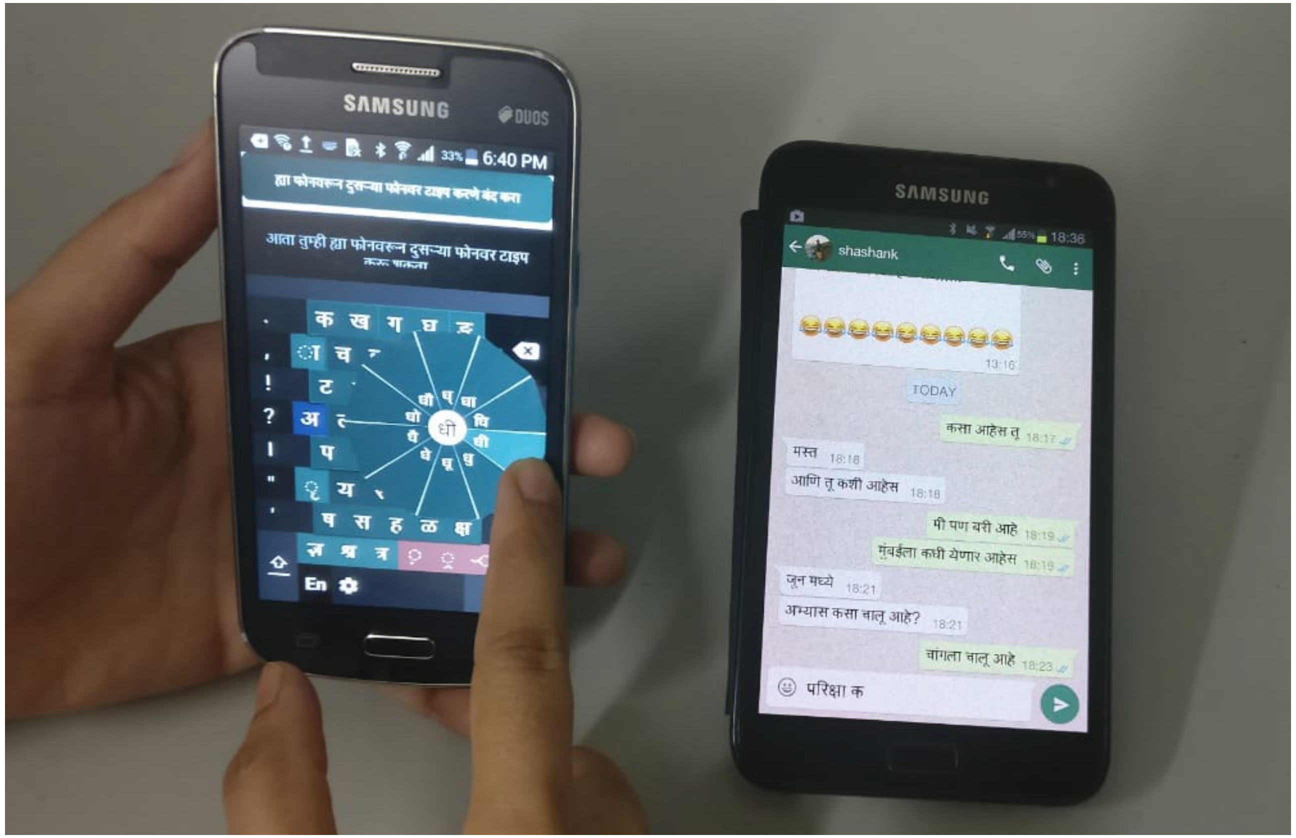




Prototype

https://dl.acm.org/doi/10.1145/3098279.3098534

The Swarachakra Marathi keyboard with the Better Together framework



ह्या फोनवरून दुसऱ्या फोनवर टाइप करणे बंद करा

आता तुम्ही ह्या फोनवरून दुसऱ्या फोनवर टाइप करू शकता

13:16

कसा आहेस तू 18:17

मस्त 18:18

आणि तू कशी आहेस 18:18

मी पण बरी आहे 18:19

मुंबईला कधी येणार आहेस 18:19

जून मध्ये 18:21

अभ्यास कसा चालू आहे? 18:21

चांगला चालू आहे 18:23

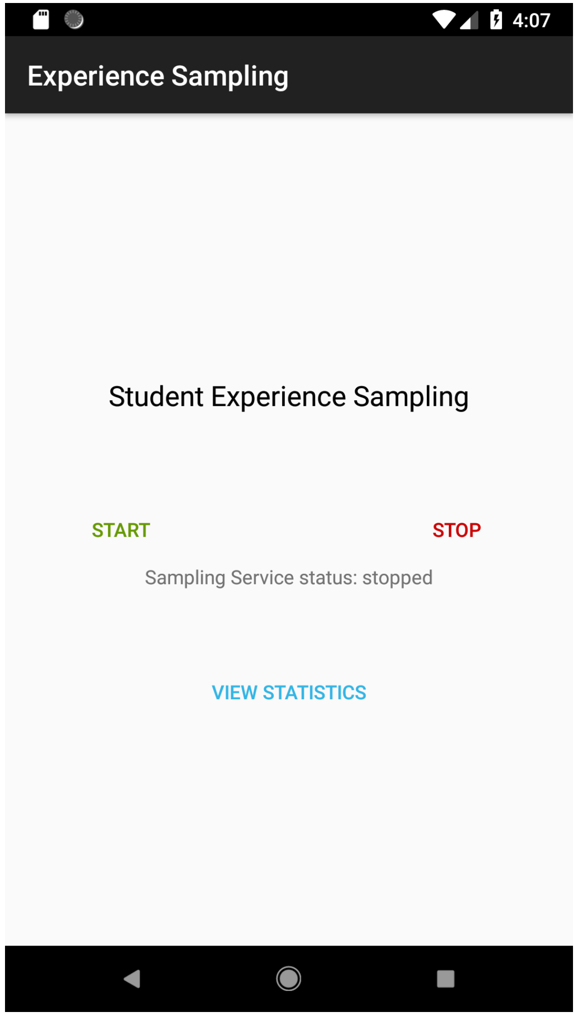
परिक्षा क

ASSIGNMENT 09 PREVIEW

Exercise 1 – Experience Sampling App

Goal:

- Implementation of paper prototype of experience sampling app.
- App should prompt the user to answer questions
- Data should be sent anonymously to the server.
- Follow the Android Material Design Guidelines



Student Experience Sampling

Sampling Service status: stopped

Exercise 1 – Experience Sampling App

CouchDB Server

- https://couchdb.hci.uni-hannover.de/_utils/index.html

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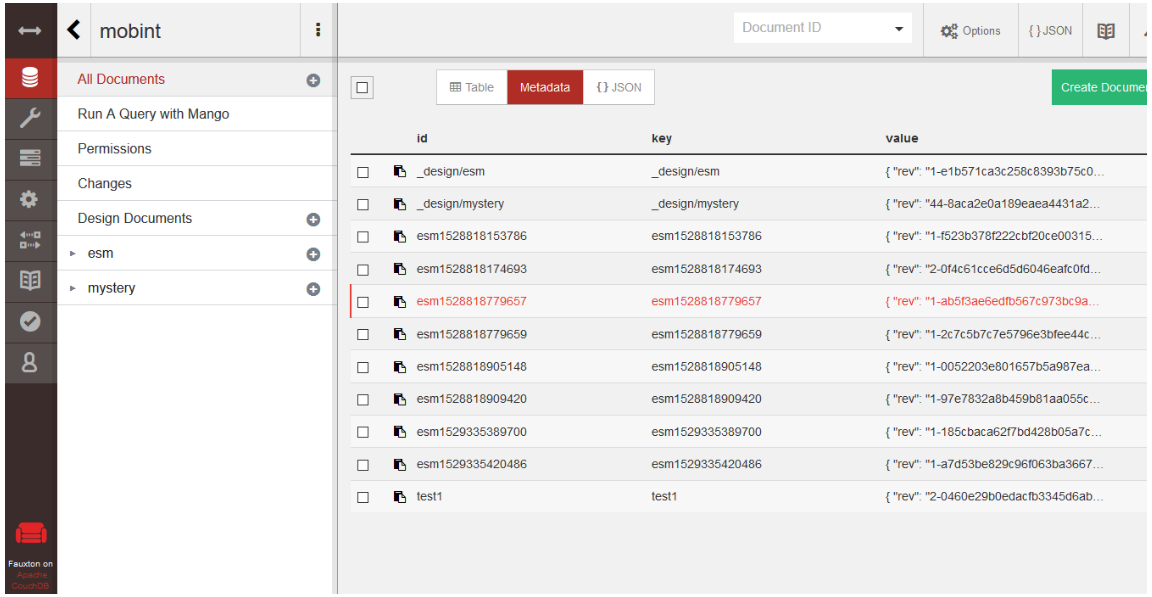
CouchDB Server

- https://couchdb.hci.uni-hannover.de/_utils/index.html
- User: surfer
- Password: CouchingOnTheCouch

Exercise 1 – Experience Sampling App

CouchDB Server

- https://couchdb.hci.uni-hannover.de/_utils/index.html
- Userid: surfer, Password: CouchingOnTheCouch
- Database “mobint“



	id	key	value
□	_design/esm	_design/esm	{ "rev": "1-e1b571ca3c258c8393b75c0...
□	_design/mystery	_design/mystery	{ "rev": "44-8aca2e0a189eaea4431a2...
□	esm1528818153786	esm1528818153786	{ "rev": "1-f523b378f222cbf20ce00315...
□	esm1528818174693	esm1528818174693	{ "rev": "2-0f4c61cce6d5d6046eafc0fd...
□	esm1528818779657	esm1528818779657	{ "rev": "1-ab5f3ae6edfb567c973bc9a...
□	esm1528818779659	esm1528818779659	{ "rev": "1-2c7c5b7c7e5796e3bfee44c...
□	esm1528818905148	esm1528818905148	{ "rev": "1-0052203e801657b5a987ea...
□	esm1528818909420	esm1528818909420	{ "rev": "1-97e7832a8b459b81aa055c...
□	esm1529335389700	esm1529335389700	{ "rev": "1-185cbaca62f7bd428b05a7c...
□	esm1529335420486	esm1529335420486	{ "rev": "1-a7d53be829c96f063ba3667...
□	test1	test1	{ "rev": "2-0460e29b0edacfb3345d6ab...

Excercise 1 – Experience Sampling App

a) Use your own unique experimenter ID to identify your documents in the database.

b) Explain the architecture of the app in terms of layers

c) CouchDB.kt:

- Why JSON documents are sent to and retrieved from the server asynchronously?
- What approach has been taken to implement asynchronous send/receive?
- Why is withContext necessary and what does it do?

Excercise 1 – Experience Sampling App

d) Sampling GUI:

- Modify the sampling GUI to match your paper prototype.
- The entered data needs to be sent to the server when the “Submit” button is pressed

e) Statistics GUI:

- Modify the statistics GUI to show averages, potentially for selectable contexts.

Exercise 2: CouchDB Design Documents

a) What is the general purpose of the map and reduce functions for databases

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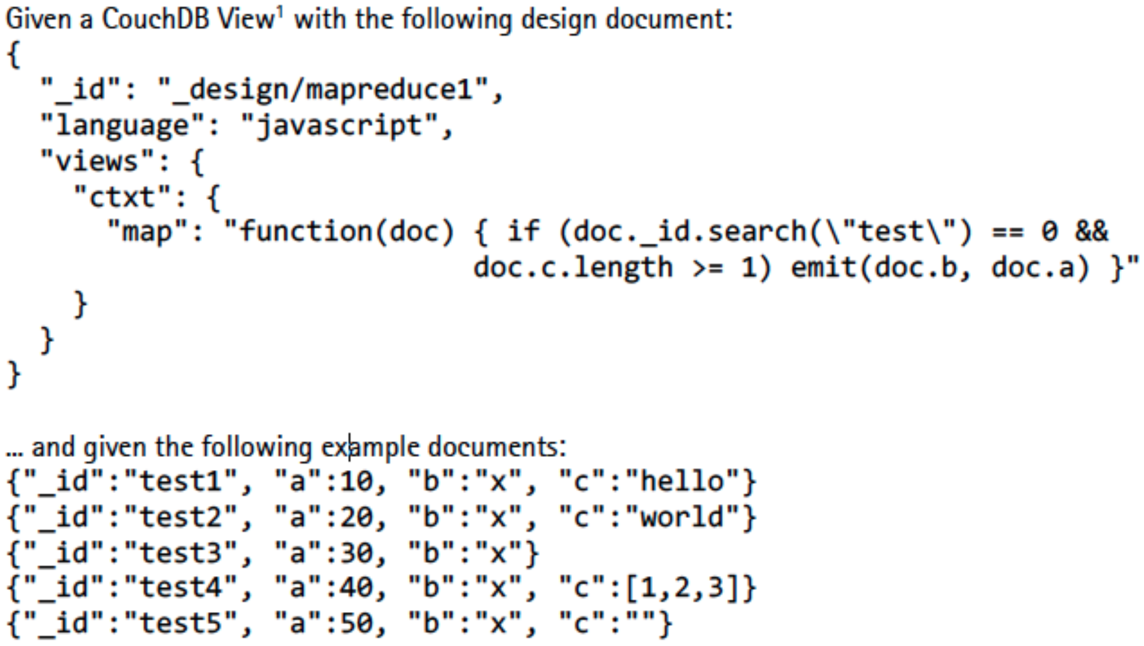
b) What does given example select and what key-value pairs does it emit (i.e., include in the result list)?



Given a CouchDB View[1] with the following design document:

```
{
  "_id": "_design/mapreduce1",
  "language": "javascript",
  "views": {
    "ctxt": {
      "map": "function(doc) { if (doc._id.search(\"test\") == 0 &&
                              doc.c.length >= 1) emit(doc.b, doc.a) }"
    }
  }
}
```

… and given the following example documents:

```
{"_id":"test1", "a":10, "b":"x", "c":"hello"}
{"_id":"test2", "a":20, "b":"x", "c":"world"}
{"_id":"test3", "a":30, "b":"x"}
{"_id":"test4", "a":40, "b":"x", "c":[1,2,3]}
{"_id":"test5", "a":50, "b":"x", "c":""}
```

Exercise 2: CouchDB Design Documents

a) What is the general purpose of the map and reduce functions for databases

b) What does given example select and what key-value pairs does it emit (i.e., include in the result list)?

c) Which of the five example documents given in example are selected and what is the output?

QUESTIONS?

GOOD LUCK!