

SMS Applications

Lecture 6: CSE 490c



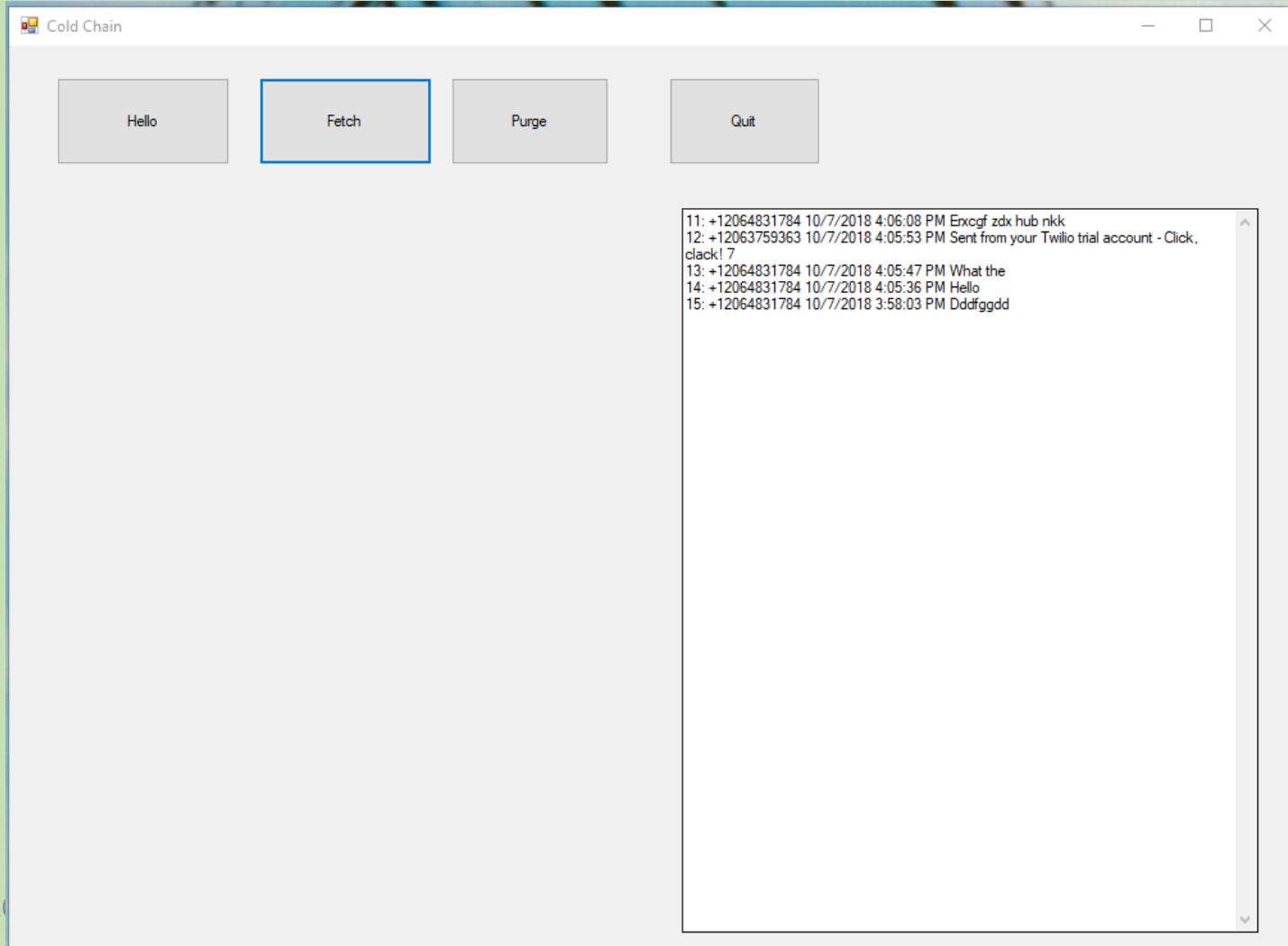
Administrivia

- Reading Assignment – CGNet Swara

Lecture 6	Monday, October 8	SMS Applications II
Lecture 7	Wednesday, October 10	Voice Applications
Lecture 8	Friday, October 12	USSD, SimApps, Thin Sims
Lecture 9	Monday, October 15	Mobile Money

Progress!

```
private List<MessageResource> getNewMessages( List <string> oldSid) {  
    List<MessageResource> newMessages = new List<MessageResource>();  
  
    var messages = MessageResource.Read();  
    foreach (var record in messages) {  
        if (!oldSid.Contains(record.Sid)) {  
            newMessages.Add(record);  
            oldSid.Add(record.Sid);  
        }  
    }  
    return newMessages;  
}
```



SMS Applications

- Server capable of sending and receiving SMS messages
- Interaction with service through a basic mobile phone

- Use cases
- SMS Gateway Technology
- Practical challenges

SMS Applications

- One way push messages
 - Maternal health messaging
- Two way SMS
 - Adherence reminders
- Data Reporting
 - Monthly report of refrigerators temperature of every vaccine refrigerator in a country
- Querying
- Market Matching

Reporting

- Data collection from the field
 - Regular reporting: Health Indicators from facility reported monthly
 - Survey: Price of a commodity from different markets
 - Event reports: Details of Dengue Fever cases
- Solution
 - Send a structured SMS message which is parsed by receiver
 - Messages can be validated by sender phone number
- Example
 - Malaria stock reporting
 - SMS for life
 - Y4B3R0G2Q99

Figure 1: SMS stock levels and interpretation



Y4: Coartem Yellow, for babies 5–15 kg: 4 boxes

B3: Coartem Blue, for children 15–25 kg: 3 boxes

R2: Coartem Red, for children 25–35 kg: 0 boxes

G1: Coartem Green, for children above 35 kg and adults: 2 boxes

Q99: Quinine injectables: 99

Reporting Apps for Feature Phones

- Java Program for data entry
- SMS as transport layer

Querying

- User sends text and system responds
- Market price queries
 - Send commodity name and market, get current price
- One bus away
 - Send route and location, get bus time
- Sports scores
 - Send team and date, get result
- Free form
 - Send question, get answer
- Wikipedia
 - Send keyword start of entry
- News
 - Send keyword, get headline associated with keyword

Market matching

- Similar to query, but match buyers and sellers
- System receives buy and sell messages – many different versions
 - Kudu:

3.1 SMS

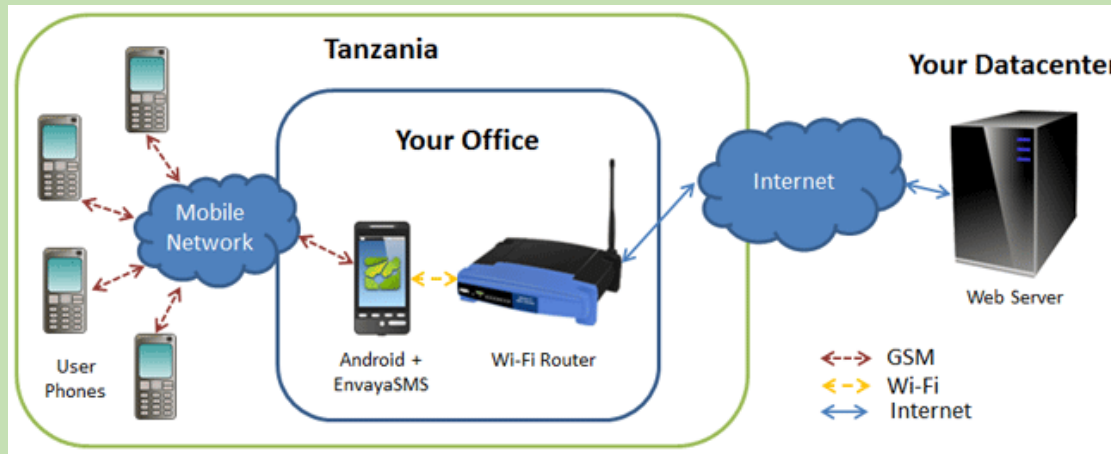
Users can send a toll-free SMS to 8228 using any of the following templates:

```
buy [crop] [quantity] [unit price]
sell [crop] [quantity] [unit price]
price [crop]
```

SMS Gateways

- Send and receive SMS messages
- Processing of the SMS messages
- Managing relationships with TelCo

DIY Gateways

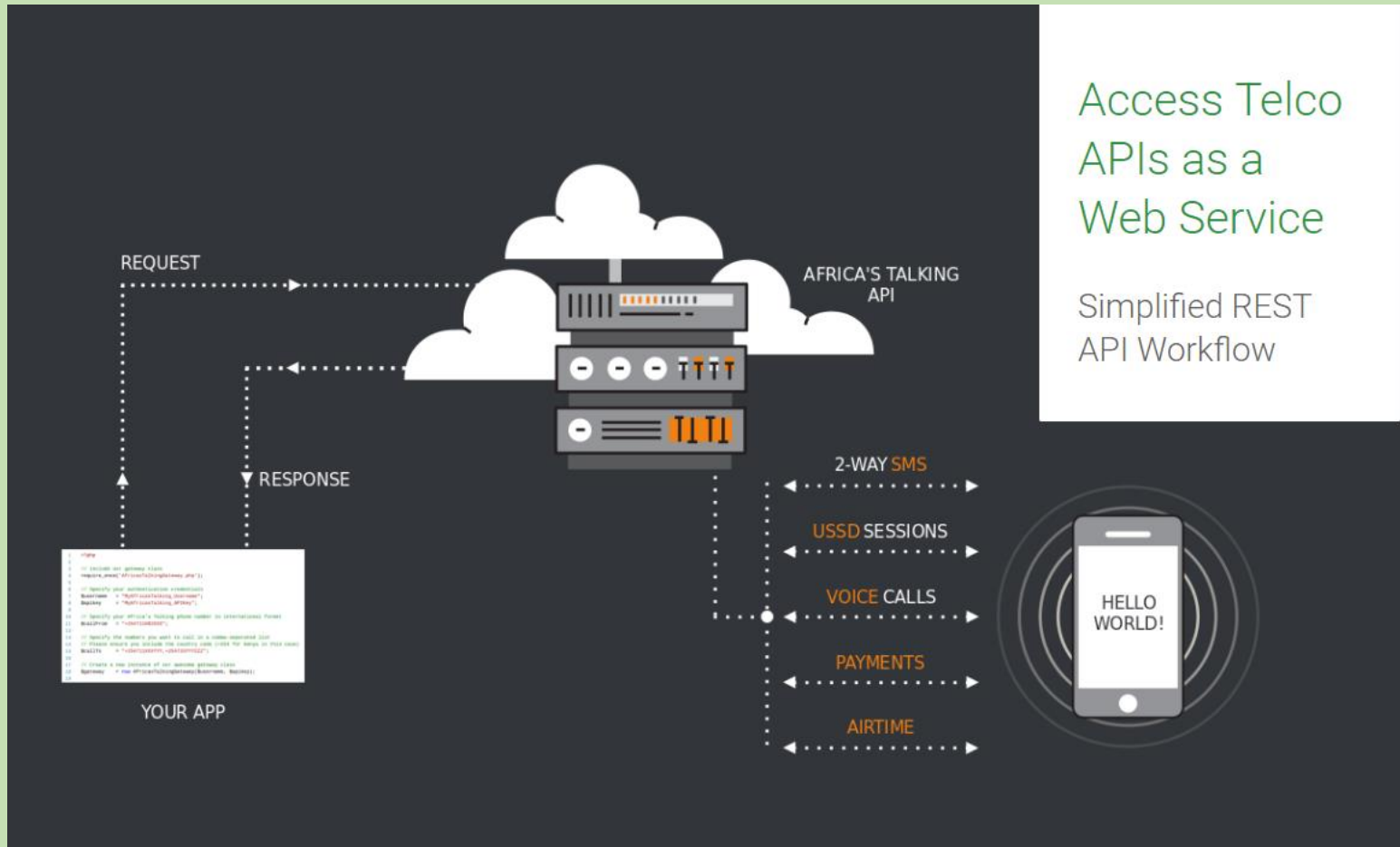


Gateway Services



- Companies managing applications for SMS
 - Sending / Receiving SMS
 - Managing Telco Relations
- Business models
 - Reselling services
 - Managing applications and services





Africa's Talking API

```
01. <?php
02. // Be sure to include the file you've just downloaded
03. require_once('AfricasTalkingGateway.php');
04.
05. // Specify your authentication credentials
06. $username = "MyAppUsername";
07. $apikey = "MyAppAPIKey";
08.
09. // Specify the numbers that you want to send to in a comma-separated list
10. // Please ensure you include the country code (+254 for Kenya in this case)
11. $recipients = "+254711XXXXYY,+254733YYYYZZ";
12.
13. // And of course we want our recipients to know what we really do
14. $message = "I'm a lumberjack and its ok, I sleep all night and I work all day";
15.
16. // Create a new instance of our awesome gateway class
17. $gateway = new AfricasTalkingGateway($username, $apikey);
18.
```

```
// Thats it, hit send and we'll take care of the rest.
$results = $gateway->sendMessage($recipients, $message);
```

```
$lastReceivedId = 0;

// Here is a sample of how to fetch all messages using a while loop
do {

    $results = $gateway->fetchMessages($lastReceivedId);
    foreach($results as $result) {

        echo " From: " . $result->from;
        echo " To: " . $result->to;
        echo " Message: " . $result->text;
        echo " Date Sent: " . $result->date;
        echo " LinkId: " . $result->linkId;
        echo " id: " . $result->id;
        echo "\n";
        $lastReceivedId = $result->id;
    }
} while ( count($results) > 0 );
```

Gateways vs DIY

- DIY for small projects, no-budget projects
- Multi country or production projects probably need a Gateway service
 - Need to factor in cost savings in not having to manage the tech
- Telco issues such as managing short codes are problematic
 - Cost challenges for medium size projects

Thoughts on SMS

- Strengths
 - Universal
 - Simple messaging can be valuable in an application
 - Local implementations are possible
- Negative
 - Literacy, Input mechanisms, and Special Formats are a challenge
 - Carrier issues
 - Cost

Future of SMS

- SMS is being replaced by other messaging platforms
 - Messaging applications should probably consider multiple technologies
- Communication applications platforms
 - Twilio, Africa's talking, Telerivit
- Later discussion
 - Chatbots (Messaging + AI)

Interactive Voice Response (IVR)

- Voice versus text
- Structure of Voice Applications
- Examples