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Windows assignment 3 design document

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# Requirements

* Develop an Android client
  + Must communicate with a server using TCP/IP
  + Implement location-finding functionality
  + Send current coordinates to server
    - Use user-specified ports
    - Use user-specified IP
    - Send updates periodically
* Develop a Linux server
  + Use the Apache web server
  + Receive client coordinates
  + Save coordinates to a browser-friendly file
    - Display coordinate-received time
    - Display IP and name of client
    - Display latitude and longitude of client
    - Save to Apache default directory
* Develop a website
  + Password protected
  + Load a file of coordinates
  + Plot coordinates on a Google Map
* Design work
* Manifest File
  + List of all submission contents
* Readme
  + Outline of all components
  + How to build all parts of the project
* User Document
* Test Document

# State Flow Diagrams

## Client



## Server



## Website



# Server Pseudo-Code

## Initialization

Main Function

{

open a UDP socket

call the Listen Function

close the UDP socket

}

## Read Data

Listen Function

{

while not done

{

read data from the UDP socket

call the Parse Data Function

call the Save To File Function

}

}

Parse Data Function

{

Create a new Message object

set the message id to the first part of the data string

set the message latitude to the second part of the data string

set the message longitude to the third part of the data string

return the message

}

## Save Data

Save To File Function

{

Open the output file

search the file for the message id

if the message id already exists

{

Update the line with the new latitude and longitude

}

else

{

Add a line to the file with the ID, latitude and longitude

}

close the output file

}

Signal Handler Function

{

set done to true

}

# Client Pseudo-Code

## Setup

Tap Start Function

{

retrieve the IP

retrieve the port

start the communication page

}

## Communication

OnLoad Function

{

Call the Send Data Function

}

Send Data Function

{

Get the current location

if the current location cannot be retrieved

{

display an error message

return false

}

Open a UDP port with the given IP and port

if the UDP port cannot be opened

{

display an error message

return false

}

Send the current location through the UDP port

Set a timer for the Send Data Function

}

# Website Pseudo-Code

## On Load

Onload Function

{

Query user for password

if password is invalid

{

display error message

redirect away from page

}

call Setup Map Function

call Display Coordinates Function

}

Setup Map Function

{

Create Google Map

if Google Map fails to be created

{

display error message

return

}

Centre map on current location

}

## Display

Display Coordinates Function

{

Load coordinates file

if file not found

{

display error message

return

}

for each line in coordinates file

{

Create new map pin at specified coordinates

set map pin text to specified id

}

Set a timer to call the Display Coordinates Function

}