**Title: Cloud Computing Project**

**Project Name: TrainTimer**

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# The Project:

You are required to create an application that will be deployed onto a PaaS provider such as Azure, OpenShift, Heroku that integrates into two existing web services.

# the web services:

### Irish rail Real-time API -

Irish Rail provide up to date Train and Station information by means of a rest based Web Service. This was used to gather data to provide to consumers.

### Twilio Cloud Communications -

Twilio was the second API/web service used. Twilio is a platform for generating both SMS messages and Phone calls. They offer multiple methods of generation but the one that was harnessed for this project was the Twilio Java Rest Client which allows for the API calls to be made from within Java applications.

# The Technology:

### Development Environment -

The Development environment chosen for this project started as Openshift. After some consideration, as I was executing a parallel project on this technology, I decided to opt for Heroku as the PaaS provider instead. The application was developed in Eclipse Juno and includes a selection of libraries, the application server used is Tomcat 7 and the JRE is 1.6 (Heroku Default)

### Structure -

This web application is driven by JSP as the front end and servlets doing the background processing. A number of key functions are handed off to other java classes.

# Conclusion:

As I started this project, I was still fairly unsure of Web Application development, and, the operational nature of PaaS providers available, their operating restrictions and the way that applications are deployed to them. I feel that this project has increased my understanding of these technologies, along with Maven (A Build tool) and has garnered me a better understanding of the Eclipse IDE. I encountered a number of problems along the way, which I will briefly outline below:

* No writable, publicly accessible storage on Heroku.
* The Twilio Call factory requiring a static XML script page   
  for Generated calls
* Could only test the application during Train operating hours

Overall, this was an interesting and enjoyable project to complete and I feel a good learning exercise.