

# Developing, Deploying, Publishing and Finding Your Own Web Service – Proof of Working Code

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## 0 - Criteria Completed

Component	Amount Completed
Criteria 1 - Access to the data using simple http web service calls (10 marks)	100% (Full implementation working.)
Criteria 2 - Options to return the data in text, json (the default) or xml (10 marks)	100% (Clear and understandable usage of formatting using libraries and able to cope with range of data objects)
Criteria 3 - Google App Engine or Microsoft Azure to implement the application on a remote cloud based server. (20 marks)	100% (Fully tested and demo'd CRUD operations on cloud server)
Criteria 4 - A WSDL description of the interface to the web service (5 marks)	100% (Full WSDL implemented and documented)
Criteria 5 - Access to the data using REST type interaction (10 marks)	100% (Full implementation working. Data transactions sent in correct RESTful way for all CRUD operations)
Criteria 6 - An Ajax based web front end to retrieve the data and display in a suitable format using library based routines for an enhanced user interface (15 marks)	100% (Excellent use of standard Ajax library and UI functionality)
Criteria 7 - Critical analysis of your work and the techniques you have used. (30 marks)	100% (Full discussion of SE techniques used and DPs with comparative evaluation.) – In a separate word document called “Critical Analysis”.

## 1.0 - Criteria 1 - Simple HTTP Web Service Calls

Criteria 1 can be accessed via the FilmHTTPWebService project, containing the backend (four packages, hibernate configuration files), the front-end (JavaScript / jQuery files, index.html) and the required jar files. The packages within this project are:

- Controller – Containing the individual Servlets, enabling HTTP requests to perform CRUD operations
- Dao – Containing the different types of data accessor objects (Traditional JDBC, Hibernate), the interface for these, and the factory class.
- Model – Containing the model classes: Film.java, FilmStore.java (for JAXB marshalling into a collection of films as XML), and Response.java (an object used to return a response to the user). The Film.java class “models” the film table in the database.
- Utilities – Containing the utility classes: FilmUtils.java, ResponseUtils.java. These are ultimately methods that are used in more than one servlet, promoting code-reuse.

Below is a table displaying the available methods that can be invoked, and the parameters required:

Key / Headers	Values	HTTP Methods	Servlets that consume the key
Key: format	xml, text, json (the default). This determines what format to return the data in.	GET	/getAllFilms /getFilmByID /getFilmsByTitle
Key: filmID	The ID of the film (10001, 10039, etc...)	GET - /getFilmByID DELETE - /deleteFilm	/getFilmByID /deleteFilm
Key: filmname	The search string for the title of the film	GET	/getFilmsByTitle
Header: Content-Type	Application/json, Application/xml. A buffered reader is used to grab the raw data, and then a conditional based on the content-type is used.	POST - /insertFilm PUT - /updateFilm	/insertFilm /updateFilm

When this project has been imported and is ran on Tomcat, navigate to this url:

<http://localhost:8080/FilmHTTPWebService/>. Here you will be able to operate the CRUD system via a front-end that looks like this:

Show all films

OR

Search by title

Search

Return Data As:

XML

Insert Film

## 1.1 – Create Film (JSON)

After sending a JSON create request, the eclipse console will output the following:

```
Received request for inserting a film into the database!
Creating a Film object from data: application/json
0#Elf#2003#Jon Favreau#Will Ferrell, Zooey Deschanel#This movie is sweet and funny, though it can't quite seem to make up its mind
Successful inserted, check db: 1
Request finished
{"response":"200 : ok","message":"Film has successfully been inserted (This response was sent in JSON)"}
```

To confirm it has been inserted into the database, MySQL Workbench is used:

1 •

SELECT \* FROM films WHERE films.title = 'ELF'

2

id	title	year	director	stars	review
11335	Elf	2003	Jon Favreau	Will Ferrell, Zooey Deschanel	This movie is sweet and funny, though it can't quite see...
NULL	NULL	NULL	NULL	NULL	NULL

## 1.2 – Create Film (XML)

After sending an XML create request, the eclipse console will output the following:

```
Received request for inserting a film into the database!
Creating a Film object from data: application/xml
0#Bad Santa#2003#Terry Zwigoff#Billy Bob Thornton, Brett Kelly#Topping off a year of above-average American comedies - Dodgeball and Anch
Successful inserted, check db: 1
Request finished
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<responseXML>
  <response>200 : ok</response>
  <message>Film has successfully been inserted (This response was sent in XML)</message>
</responseXML>
```

To confirm it has been inserted into the database, MySQL Workbench is used:

```

1 • SELECT * FROM films WHERE films.title = 'Bad Santa'
2

```

id	title	year	director	stars	review
11334	Bad Santa	2003	Terry Zwigoff	Billy Bob Thornton, Brett Kelly	Topping off a year of above-average American comedie...

### 1.3 – Retrieve All Films

After requesting to retrieve all films, eclipse will display the following messages in console:

```

Get All Films request retrieved!
Chosen format type for all films is: xml
Films have been formatted

```

The front-end will then display all the films in a table:

Search For All Films Finished Successfully (Retrieved: xml)

Show all films

OR

Search by title

Search

Return Data As:

XML

Insert Film

Show 10 entries

Search:

Film ID	Title	Year	Director	Stars	Review	Options
10003	9 1/2 WEEKS	1986	ADRIAN LYNE	MICKEY ROURKE, KIM BASINGER	Director Lyne shows his pop video roots in this erotic tale reputedly based on a true story. Basinger falls for stubble-cheeked Rourke and a steamy, sadomasochistic relationship begins. It lasts the period of the title before the intensity gets too much for her. Joe Cocksers version of You Can Leave Your Hat On accompanies a Basinger strip routine and then theres the infamous fridge sequence.	
10004	976-EVIL II: THE RETURN	1988	JIM WYNORSKI	PATRICK O'BRYAN, DEBBIE JAMES	Sequel that still finds the ultimate telephone line, the Devils equivalent of an 0898 number, acquiring victims. The head of a high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any one who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with Satan himself.	
10005	A BETTER TOMORROW	1986	JOHN WOO	CHOW YUN-FAT, LESLIE CHEUNG	The film which brought international stardom to star Chow Yun-Fat and director John Woo. A roller-coaster of a ride with brothers on both sides of the law becoming united in their quest for personal revenge. After forger Mark (Chow) is crippled and double crossed by an associate, cop Kit (Cheung) risks his badge to help him. Violent and gripping. Also available as a boxed set with a supplementary documentary and booklet.	
10006	A BRONX TALE	1993	ROBERT DE NIRO	ROBERT DE NIRO, CHAZZ PALMINTERI	De Niro's directorial debut, taken from co-star Palminteris own stage play. De Niro leads a cast of virtual unknown as a hard-working Bronx bus driver, alarmed at his sons fascination with the local underworld figures. But the lad is involved even deeper than he knows and soon hell have to confront the gangsters in an effort to win back his sons respect.	
10007	A CHILD LOST FOREVER	1993	CLAUDIA WEILL	BEVERLY D'ANGELO, WILL PATTON	Another of the Odyssey labels seemingly endless supply of true-life weepies, this one involves a young woman (Beverly D'Angelo from High Spirits) reluctantly giving up her child for adoption. Years later she discovers that it died in mysterious circumstances at the age of only three and decides to investigate.	
10008	A FEW GOOD MEN	1992	ROB REINER	TOM CRUISE, JACK NICHOLSON	After the mysterious death of a young Marine in the barracks, a young navy Lawyer (Cruise) is called in to investigate. The further he delves into the mystery the more he is thwarted by the fearsome and unyielding Colonel Nathan Jessup (Nicholson), a man who knows the truth and is determined to conceal it...	

### 1.4 – Retrieve Films By Title

After requesting to retrieve films by search name relating to the title, eclipse will display the following messages in console:

```

Received request for retrieving all films by title!
Format type requested is: xml and the search name is: nightmare
Films have been formatted

```

The front-end will then display the films that were found:

Search For 'nightmare' Has Finished Successfully (Retrieved: xml)

Show all films

OR

nightmare

Search

Return Data As:

XML

Insert Film

Show 10 entries

Search:

Film ID	Title	Year	Director	Stars	Review	Options
10013	A NIGHTMARE ON ELM ST. PART 2	1985	JACK SHOLDER	ROBERT ENGLUND, KIM MYERS	Confused sequel with the spirit of Freddy Krueger coming back to possess a young teenager (Mark Patton). Soon hes dispatching his enemies, such as a sadistic gym teacher, until Freddy makes his return to the real world and causes havoc at a poolside party. Not the best in the series.	
10014	A NIGHTMARE ON ELM STREET	1984	WES CRAVEN	HEATHER LANGENKAMP, JOHN SAXON	The one that started the long-running Freddy Krueger series and still the best. When a group of teenagers start to have dreams about a scared killer wearing a glove with blades on the fingers, they do not know that he is coming back for revenge for being murdered by their parents years before. When the kids start to die one girl tries to unravel the horrifying mystery of his identity. A very early performance from a young Johnny Depp.	
10015	A NIGHTMARE ON ELM STREET PART 6 - FREDDY'S DEAD	1991	RACHEL TALALAY	ROBERT ENGLUND, LISA ZANE	The man of your dreams is about to go bye-byes, as he finally gets his comeuppance after taking on his own daughter (somebody never even mentioned in the series so far). Some of the cassettes available included the last reel in 3D, although you need the special glasses. And yes, hes well and truly dead. Until Wes Cravens New Nightmare that is!!	
10719	NIGHTMARE ON ELM STREET 3 - DREAM WARRIORS	1987	CHUCK RUSSELL	ROBERT ENGLUND, PATRICA ARQUETTE	Possibly the best of the sequels, with Freddy Krueger infiltrating the dreams of a group of disturbed teenagers who are under the care of therapist Nancy Thompson (Heather Langenkamp from the first film). Clever plot twists actually form part of the story rather than just being special effects set-pieces as in the later films. Also features Larry Fishburne, Craig Wasson and screen veteran John Saxon.	

Showing 1 to 4 of 4 entries

Previous

1

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## 1.5 – Update A Film (XML)

After sending a request to update the film via XML, the eclipse console will display:

```
Received request to update film!
Updating a Film object from data: application/xml
11350#Elf - Updated via XML#2003#Jon Favreau#Will Ferrell, Zooey Deschanel#This movie is sweet and funny, though it
Successful updated, check db: 1
Request finished
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<responseXML>
  <response>200 : ok</response>
  <message>Film has successfully been updated (This response was sent in XML)</message>
</responseXML>
```

To confirm it has been updated in the database, MySQL Workbench is used:

```
1 • SELECT * FROM films WHERE films.title LIKE '%Elf%'
2 |
3 |
```

id	title	year	director	stars	review
11350	Elf - Updated via XML	2003	Jon Favreau	Will Ferrell, Zooey Deschanel	This movie is sweet and funny, though it can't quite see...
•	NULL	NULL	NULL	NULL	NULL

## 1.6 – Update A Film (JSON)

After sending a request to update the film via JSON, the eclipse console will display:

```
Received request to update film!
Updating a Film object from data: application/json
11334#Bad Santa - Updated via JSON#2003#Terry Zigoff#Billy Bob Thornton, Brett Kelly#Topping off a year c
Successful updated, check db: 1
Request finished
{"response":"200 : ok","message":"Film has successfully been updated (This response was sent in JSON)"}

```

To confirm it has been updated in the database, MySQL Workbench is used:

```
1 • SELECT * FROM films WHERE films.title LIKE '%Bad Santa%'
2
```

Result Grid						
Filter Rows: <input type="text"/>						
Edit:    Export/Import:   Wrap Cell Content:						
	id	title	year	director	stars	review
▶	11334	Bad Santa - Updated via JSON	2003	Terry Zwigoff	Billy Bob Thornton, Brett Kelly	Topping off a year of above-average American comedie...
*	NULL	NULL	NULL	NULL	NULL	NULL

## 1.7 – Deleting A Film

After sending a request to delete a film, the eclipse console will display the following:

```
Delete request retrieved!
Film requested to be deleted: 11335
Successful delete, check db: 1
{"response":"200 : ok","message":"Film: 11335 has successfully been deleted"}
```

To confirm the Film with ID “11335” was deleted from the database, MySQL workbench is used:

```
1 • SELECT * FROM films WHERE films.id = 11335
2
```

Result Grid						
Filter Rows: <input type="text"/>						
Edit:    Export/Import:						
	id	title	year	director	stars	review
*	NULL	NULL	NULL	NULL	NULL	NULL

## 2.0 - Criteria 2 – Returning Data in Different Formats

For the HTTP project that uses servlets, JAXB and Gson are used to explicitly format the films into XML / JSON, and an overridden toString method was used for the formatting to TEXT. These solutions can cope with a range of data objects. For the RESTful project, JAXB is still used for annotations, but the formatting is implicitly done for us via spring annotations.



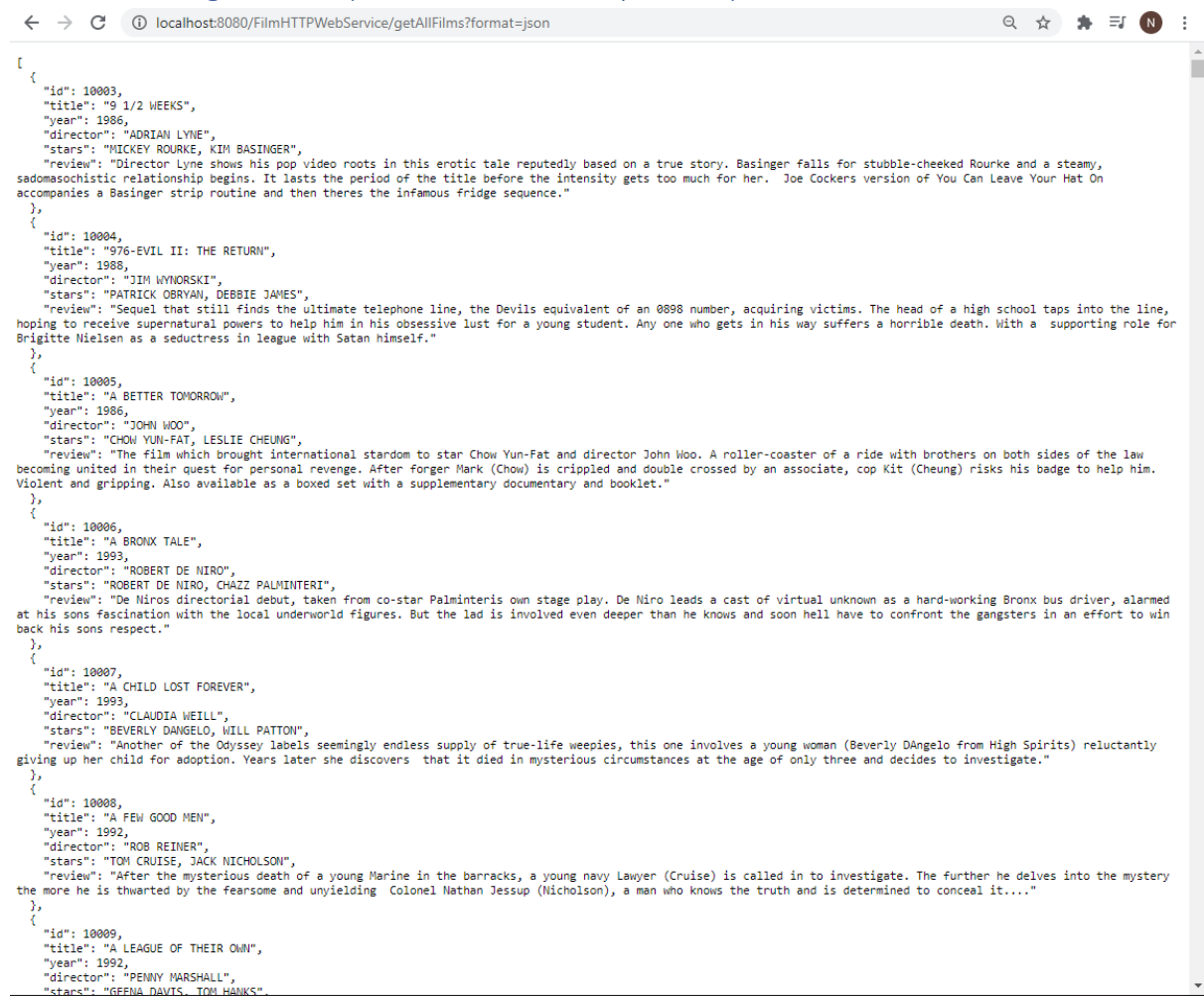
## 2.1 – Returning as XML

← → ↺ localhost:8080/FilmHTTPWebService/getAllFilms?format=xml 🔍 ☆ ⚙️ 📄 N ⋮

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<ns2:filmStore xmlns:ns2="model">
  <filmList>
    <film>
      <id>10003</id>
      <title>9 1/2 WEEKS</title>
      <year>1986</year>
      <director>ADRIAN LYNE</director>
      <stars>MICKEY ROURKE, KIM BASINGER</stars>
      <review>Director Lyne shows his pop video roots in this erotic tale reputedly based on a true story. Basinger falls for stubble-cheeked Rourke and a steamy, sadomasochistic relationship begins. It lasts the period of the title before the intensity gets too much for her. Joe Cocker's version of You Can Leave Your Hat On accompanies a Basinger strip routine and then there's the infamous fridge sequence.</review>
    </film>
    <film>
      <id>10004</id>
      <title>976-EVIL II: THE RETURN</title>
      <year>1988</year>
      <director>JIM WYNORSKI</director>
      <stars>PATRICK O'BRYAN, DEBBIE JAMES</stars>
      <review>Sequel that still finds the ultimate telephone line, the Devils equivalent of an 0898 number, acquiring victims. The head of a high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any one who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with Satan himself.</review>
    </film>
    <film>
      <id>10005</id>
      <title>A BETTER TOMORROW</title>
      <year>1986</year>
      <director>JOHN WOO</director>
      <stars>CHOW YUN-FAT, LESLIE CHEUNG</stars>
      <review>The film which brought international stardom to star Chow Yun-Fat and director John Woo. A roller-coaster of a ride with brothers on both sides of the law becoming united in their quest for personal revenge. After forger Mark (Chow) is crippled and double crossed by an associate, cop Kit (Cheung) risks his badge to help him. Violent and gripping. Also available as a boxed set with a supplementary documentary and booklet.</review>
    </film>
    <film>
      <id>10006</id>
      <title>A BRONX TALE</title>
      <year>1993</year>
      <director>ROBERT DE NIRO</director>
      <stars>ROBERT DE NIRO, CHAZZ PALMINTERI</stars>
      <review>De Niro's directorial debut, taken from co-star Palminteri's own stage play. De Niro leads a cast of virtual unknowns as a hard-working Bronx bus driver, alarmed at his sons' fascination with the local underworld figures. But the lad is involved even deeper than he knows and soon hell have to confront the gangsters in an effort to win back his sons' respect.</review>
    </film>
    <film>
      <id>10007</id>
      <title>A CHILD LOST FOREVER</title>
      <year>1993</year>
      <director>CLAUDIA WEILL</director>
      <stars>BEVERLY D'ANGELO, WILL PATTON</stars>
      <review>Another of the Odyssey labels seemingly endless supply of true-life weepies, this one involves a young woman (Beverly D'Angelo from High Spirits) reluctantly giving up her child for adoption. Years later she discovers that it died in mysterious circumstances at the age of only three and decides to investigate.</review>
    </film>
    <film>
      <id>10008</id>
      <title>A FEW GOOD MEN</title>
      <year>1992</year>
      <director>ROB REINER</director>
      <stars>TOM CRUISE, JACK NICHOLSON</stars>
      <review>After the mysterious death of a young Marine in the barracks, a young navy lawyer (Cruise) is called in to investigate. The further he delves into the mystery the more he is thwarted by the fearsome and unyielding Colonel Nathan Jessup (Nicholson), a man who knows the truth and is determined to conceal it....</review>
    </film>
    <film>
      <id>10009</id>
      <title>A FUGITIVE OF TWO COUNTRIES</title>
    </film>
  </filmList>
</ns2:filmStore>
```

## 2.2 – Returning as JSON (the default if non-specified)



```
[
  {
    "id": 10003,
    "title": "9 1/2 WEEKS",
    "year": 1986,
    "director": "ADRIAN LYNE",
    "stars": "MICKEY ROURKE, KIM BASINGER",
    "review": "Director Lyne shows his pop video roots in this erotic tale reputedly based on a true story. Basinger falls for stubble-cheeked Rourke and a steamy, sadomasochistic relationship begins. It lasts the period of the title before the intensity gets too much for her. Joe Cockers version of You Can Leave Your Hat On accompanies a Basinger strip routine and then theres the infamous fridge sequence."
  },
  {
    "id": 10004,
    "title": "976-EVIL II: THE RETURN",
    "year": 1988,
    "director": "JIM WYMORSKI",
    "stars": "PATRICK O'BRYAN, DEBBIE JAMES",
    "review": "Sequel that still finds the ultimate telephone line, the Devils equivalent of an 0898 number, acquiring victims. The head of a high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any one who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with Satan himself."
  },
  {
    "id": 10005,
    "title": "A BETTER TOMORROW",
    "year": 1986,
    "director": "JOHN WOO",
    "stars": "CHOW YUN-FAT, LESLIE CHEUNG",
    "review": "The film which brought international stardom to star Chow Yun-Fat and director John Woo. A roller-coaster of a ride with brothers on both sides of the law becoming united in their quest for personal revenge. After forger Mark (Chow) is crippled and double crossed by an associate, cop Kit (Cheung) risks his badge to help him. Violent and gripping. Also available as a boxed set with a supplementary documentary and booklet."
  },
  {
    "id": 10006,
    "title": "A BRONX TALE",
    "year": 1993,
    "director": "ROBERT DE NIRO",
    "stars": "ROBERT DE NIRO, CHAZZ PALMINTERI",
    "review": "De Niro's directorial debut, taken from co-star Palminteris own stage play. De Niro leads a cast of virtual unknown as a hard-working Bronx bus driver, alarmed at his sons fascination with the local underworld figures. But the lad is involved even deeper than he knows and soon hell have to confront the gangsters in an effort to win back his sons respect."
  },
  {
    "id": 10007,
    "title": "A CHILD LOST FOREVER",
    "year": 1993,
    "director": "CLAUDIA WEILL",
    "stars": "BEVERLY DANGELO, WILL PATTON",
    "review": "Another of the Odyssey labels seemingly endless supply of true-life weepies, this one involves a young woman (Beverly D'Angelo from High Spirits) reluctantly giving up her child for adoption. Years later she discovers that it died in mysterious circumstances at the age of only three and decides to investigate."
  },
  {
    "id": 10008,
    "title": "A FEW GOOD MEN",
    "year": 1992,
    "director": "ROB REINER",
    "stars": "TOM CRUISE, JACK NICHOLSON",
    "review": "After the mysterious death of a young Marine in the barracks, a young navy Lawyer (Cruise) is called in to investigate. The further he delves into the mystery the more he is thwarted by the fearsome and unyielding Colonel Nathan Jessup (Nicholson), a man who knows the truth and is determined to conceal it...."
  },
  {
    "id": 10009,
    "title": "A LEAGUE OF THEIR OWN",
    "year": 1992,
    "director": "PENNY MARSHALL",
    "stars": "GEEFHA DAVIS, TOM HANKS"
  }
]
```

## 2.3 – Returning as TEXT

localhost:8080/FilmHTTPWebService/getAllFilms?format=text

10003#9 1/2 WEEKS#1986#ADRIAN LYNE#MICKEY ROURKE, KIM BASINGER#Director Lyne shows his pop video roots in this erotic tale reputedly based on a true story. Basinger falls for stubble-cheeked Rourke and a steamy, sado-masochistic relationship begins. It lasts the period of the title before the intensity gets too much for her. Joe Cocker's version of You Can Leave Your Hat On accompanies a Basinger strip routine and then there's the infamous fridge sequence.

10004#976-EVIL II: THE RETURN#1988#JIM WYNORSKI#PATRICK O'BRYAN, DEBBIE JAMES#Sequel that still finds the ultimate telephone line, the Devil's equivalent of an 0898 number, acquiring victims. The head of a high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any one who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with Satan himself.

10005#A BETTER TOMORROW#1986#JOHN WOO#CHOW YUN-FAT, LESLIE CHEUNG#The film which brought international stardom to star Chow Yun-Fat and director John Woo. A roller-coaster of a ride with brothers on both sides of the law becoming united in their quest for personal revenge. After forger Mark (Chow) is crippled and double crossed by an associate, cop Kit (Cheung) risks his badge to help him. Violent and gripping. Also available as a boxed set with a supplementary documentary and booklet.

10006#A BRONX TALE#1993#ROBERT DE NIRO#ROBERT DE NIRO, CHAZZ PALMINTERI#De Niro's directorial debut, taken from co-star Palminteri's own stage play. De Niro leads a cast of virtual unknowns as a hard-working Bronx bus driver, alarmed at his sons' fascination with the local underworld figures. But the lad is involved even deeper than he knows and soon hell have to confront the gangsters in an effort to win back his sons' respect.

10007#A CHILD LOST FOREVER#1993#CLAUDIA WIELL#BEVERLY DANGELO, WILL PATTON#Another of the Odyssey labels seemingly endless supply of true-life weepies, this one involves a young woman (Beverly Dangelo from High Spirits) reluctantly giving up her child for adoption. Years later she discovers that it died in mysterious circumstances at the age of only three and decides to investigate.

10008#A FEW GOOD MEN#1992#ROB REINER#TOM CRUISE, JACK NICHOLSON#After the mysterious death of a young Marine in the barracks, a young navy lawyer (Cruise) is called in to investigate. The further he delves into the mystery the more he is thwarted by the fearsome and unyielding Colonel Nathan Jessup (Nicholson), a man who knows the truth and is determined to conceal it....

10009#A LEAGUE OF THEIR OWN#1992#PENNY MARSHALL#GEEA DAVIS, TOM HANKS#Loosely based on the true story of the all-women's baseball league which was formed during the war while all the male players were fighting overseas. Concentrating on one team, the Rockford Peaches whose members include Davis, Madonna, and Lori Petty. Broken-down coach Tom Hanks has to knock them into some sort of shape.

10010#A LITTLE PRINCESS#1995#ALFONSO CUARON#LIESEL MATTHEWS, ELEANOR BRON#Enchanting family story, with a young shy girl being sent to an austere boarding school in New York after her father leaves to go to war. Initially she has a terrible time, being regarded as an outsider, but slowly realises her own self-worth and becomes liked and admired by both the staff and the pupils. Eleanor Bron plays the strict governess.

10011#A LOW DOWN DIRTY SHAME#1994#KEENAN IVORY WAYANS#KEENAN IVORY WAYANS, JADA PINKETT#Cool and sleek comedy thriller directed by and starring IN LIVING COLORS Wayans. Hes the Shame of the name, an ex-cop whose personal vendetta with a drug lord got him thrown off the force. Now a private eye hes given an opportunity to get back at the man who wrecked his career. Enjoyable fun with some gripping shoot-outs. Mrs Will Smith, Jada Pinkett co-stars.

10013#A NIGHTMARE ON ELM ST. PART 2#1985#JACK SHOLDER#ROBERT ENGLUND, KIM MYERS#Confused sequel with the spirit of Freddy Krueger coming back to possess a young teenager (Mark Patton). Soon hes dispatching his enemies, such as a sadistic gym teacher, until Freddy makes his return to the real world and causes havoc at a poolside party. Not the best in the series.

10014#A NIGHTMARE ON ELM STREET#1984#WES CRAVEN#HEATHER LANGENKAMP, JOHN SAXON#The one that started the long-running Freddy Krueger series and still the best. When a group of teenagers start to have dreams about a scarred killer wearing a glove with blades on the fingers, they do not know that he is coming back for revenge for being murdered by their parents years before. When the kids start to die one girl tries to unravel the horrifying mystery of his identity. A very early performance from a young Johnny Depp.

10015#A NIGHTMARE ON ELM STREET PART 6 - FREDDY'S DEAD#1991#RACHEL TALALAY#ROBERT ENGLUND, LISA ZANE#The man of your dreams is about to go bye-byes, as he finally gets his comeuppance after taking on his own daughter (somebody never even mentioned in the series so far). Some of the cassettes available included the last reel in 30, although you need the special glasses. And yes, hes well and truly dead. Until Wes Cravens New Nightmare that is!!

10016#A.P.E.X.#1994#PHILIP J. ROTH#RICHARD KEATS, LISA ANN RUSSELL#Okay sci-fi with good ideas but hampered by a pretty obvious lack of budget. A scientist travels back in time to retrieve an experimental probe but unwittingly infects the present with a virus. When he goes back to the future the plague has decimated mankind, and hunter / killer robots roam the wastelands. Decent effects considering the money available, but its pretty obvious theyve only got three robot suits at any one time.

10017#A PERFECT WORLD#1993#CLINT EASTWOOD#KEVIN COSTNER, CLINT EASTWOOD#Costner is a prison escapee who takes a young boy as hostage in order to get across state lines in a stolen car and Clint is the Sheriff on his trail in this absorbing drama. As they proceed the crook and the boy start to respect and even like each other, but the cops are gaining mile by mile, with orders to shoot to kill...

10018#A RAGE IN HARLEM#1991#BILL DUKE#GREGORY HINES, FOREST WHITAKER#Very entertaining period comedy drama set in the 50s, taken from the book by Chester Himes. Ex-Mrs Mike Tyson Robin Givens hides out in Harlem with a stash of stolen gold and tries to hang onto it while being hunted by everyone from the Mob owners of the loot to Himes as a phony priest. Danny Glover is superb in a small role as a tough gangster totally devoted to his tiny pet poodle. Terrific soundtrack too.

10019#A RIVER RUNS THROUGH IT#1992#ROBERT REDFORD#BRAD PITT, EMILY LLOYD#Slightly rambling but thoroughly enjoyable family saga, with Tom Skeritt teaching his sons the virtues theyll need for later life, as well as instilling in them a love of fly-fishing. The boys (Pitt and Craig Sheffer) eventually leave home but one of them is going to be seduced by the vices of the big city, leading to a tragic end. Great performances all round including Brenda Blethyn as the boys mother.

10020#A SIMPLE WISH#1997#MICHAEL RITCHEY#MARA WILSON, MARTIN SHORT#Childrens fantasy starring Mara Wilson from Matilda. She plays the daughter of one of Central Parks horse drawn cab drivers who longs for a fairy godmother to grant her special wish for her dad. However, the character who appears with a magic wand is Murray (Martin Short), the least qualified fairy godmother on the block. Lots of wild special effects and with Kathleen Turner as an evil witch.

10021#A THIN LINE BETWEEN LOVE AND HATE#1996#MARTIN LAWRENCE#MARTIN LAWRENCE, LYNN WHITFIELD#The directorial debut of comedian Martin Lawrence (Bad Boys, Nothing To Lose). Fatal Attraction played for laughs with Lawrence having a one-night stand with Whitfield and then finding she thinks one night is not enough and wants more of him - at gunpoint if necessary. His comedy comes across much better in his stand-up performance film You So Crazy.

10022#A TIME TO KILL#1996#JOEL SCHUMACHER#MATTHEW MC CONAUGHEY#Based on another John Grisham bestseller. Matthew McConaughey plays a Southern lawyer who takes on the case of a black man who has killed his daughters rapists. As the racial divide splits the town and threatens him and his family, help comes in the form of law student Sandra Bullock. Co-starring Samuel L. Jackson and Kevin Spacey.

10023#A VIEW TO A KILL#1985#JOHN GLEN#ROGER MOORE, CHRISTOPHER WALKEN#Not the best movie in the series with which Moore to choose to end his tenure of the 00 prefix but it has its moments in the set-pieces and stunts. Christopher Walken is a genetically-perfect psychopath, created via a test-tube, whose plan is to destroy Californias Silicon Valley thus leaving his company as the only source of computer technology. Grace Jones and Tanya Roberts are not memorable Bond girls either.

10024#A.W.O.L. - ABSENT WITHOUT LEAVE#1990#SHELDON LETTICH#JEAN CLAUDE VAN DAMME#A Foreign Legionnaire throws his kipi away and enters the world of illegal fighting in this formula Van Damme offering. With the usual motive of wanting revenge for the murder of his brother he takes on all comers in repeated fights to the death (this is now a feature of Van Damme films from Bloodsport to The Quest). Must be the first film in which a Scotsman kickboxes while wearing a kilt....

10025#A WALK IN THE CLOUDS#1995#ALFONSO ARAU#KEANU REEVES, GIANCARLO GIANINI#Moody love story which is beautifully filmed. Reeves plays a soldier who returns home after the war to find his wife has changed and the reason between them estranged. On the road as a salesman he meets the witty African fashion designer, the youngest daughter of a

## 3.0 - Criteria 3 & Criteria 6 – Google App-Engine With Cloud Database & AJAX Based Web Front-end

For Criteria 3, I copied the “FilmHTTPWebService” project code over to a new Google App-Engine project “FilmCloudWebService”, and configured the Data Accessor Object configuration (Hibernate in this case) to target the Cloud SQL database I set up.

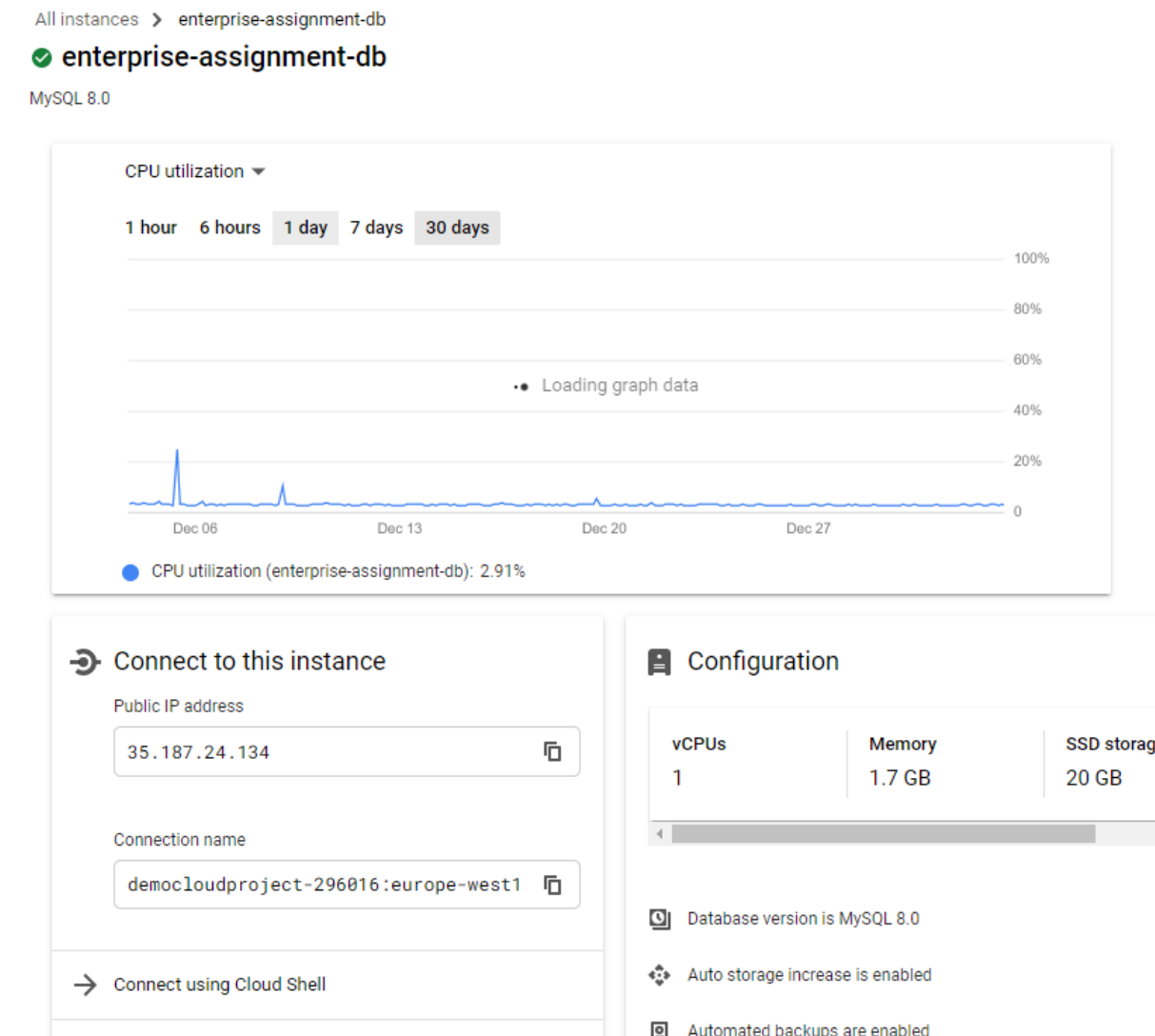
The front-end used for the Cloud in the “FilmCloudWebService” project is the same for “FilmHTTPWebMacher” and “FilmRESTfulWebService” projects.

Demonstrating the front-end in this section and confirming results with MySQL Workbench will show that the Cloud CRUD operations fully work (satisfying criteria 3), and will also evidence the use of UI libraries. jQuery was used for AJAX calls and wherever else possible and most convenient to do so.

For the front-end, DataTables & bootstrap is used to generate and style the dynamic film table.

The link to the live cloud version is: <https://democloudproject-296016.ew.r.appspot.com/>

Below is proof of the Google Cloud database from Google console:



Below shows the hibernate configuration used when deploying the Google App Engine to the Cloud, so it will target the Cloud Database.

```
<property name="hibernate.connection.url">jdbc:mysql:///</property>
<property name="hibernate.connection.driver_class">com.mysql.cj.jdbc.Driver</property>
<property name="hibernate.connection.username">root</property>
<property name="hibernate.connection.password">admin</property>
<property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>
<property name="hibernate.default_schema">filmbd</property>
<property name="hibernate.connection.socketFactory">com.google.cloud.sql.mysql.SocketFactory</property>
<property name="hibernate.connection.cloudSqlInstance">democloudproject-296016:europa-west1:enterprise-assignment-db</property>
```

### 3.1 – Get All Films

When “Show All Films” is pressed, a loading div appears whilst the ajax operation takes place and waits for the server to respond. The first request may take some time as I have selected the cheapest database option on Cloud SQL.

← → ↻ democloudproject-296016.ew.r.appspot.com ☆ ⚙️ 📄 N ⋮

Searching For All Films (May take a while depending on server used) ✕

Show all films

OR

Search by title

Search

Return Data As:

XML ▾

Insert Film

When the AJAX operation finishes, the film table appears, and the alert div updates to a successful response.

← → ↻ democloudproject-296016.ew.r.appspot.com ☆ ⚙️ 📄 N ⋮

Search For All Films Finished Successfully (Retrieved: xml) ✕

Show all films

OR

Search by title

Search

Return Data As:

XML ▾

Insert Film

Show 100 ▾ entries

Search:

Film ID	Title	Year	Director	Stars	Review	Options
10004	976-EVIL II: THE RETURN	1988	JIM WYNORSKI	PATRICK OBRYAN, DEBBIE JAMES	Sequel that still finds the ultimate telephone line, the Devils equivalent of an 0898 number, acquiring victims. The head of a high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any one who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with Satan himself.	
10005	A BETTER TOMORROW	1986	JOHN WOO	CHOW YUN-FAT, LESLIE CHEUNG	The film which brought international stardom to star Chow Yun-Fat and director John Woo. A roller-coaster of a ride with brothers on both sides of the law becoming united in their quest for personal revenge. After forger Mark (Chow) is crippled and double crossed by an associate, cop Kit (Cheung) risks his badge to help him. Violent and gripping.	

### 3.2 – Get Films By Title

The below image shows the result of searching for “Nightmare on elm street 3” (There is also a loading div that appears during the ajax call):

Search For 'Nightmare on elm street 3' Has Finished Successfully (Retrieved: xml)

Show all films

OR

Nightmare on elm street 3

Search



Return Data As:

XML

Insert Film

Show 100 entries

Search:

Film ID	Title	Year	Director	Stars	Review	Options
10719	NIGHTMARE ON ELM STREET 3 - DREAM WARRIORS	1987	CHUCK RUSSELL	ROBERT ENGLUND, PATRICA ARQUETTE	Possibly the best of the sequels, with Freddy Krueger infiltrating the dreams of a group of disturbed teenagers who are under the care of therapist Nancy Thompson (Heather Langenkamp from the first film). Clever plot twists actually form part of the story rather than just being special effects set-pieces as in the later films. Also features Larry Fishburne, Craig Wasson and screen veteran John Saxon.	 

Showing 1 to 1 of 1 entries

Previous 1 Next

### 3.3 – Create Film

When “Insert Film” is pressed, a bootstrap modal pops up with a form for the user to fill in and submit.

Search For All Films Finished Successfully (Retrieved: xml)

Show all films

OR

Insert Film

☒ Send as JSON, Return as JSON  
☐ Send as XML, Return as XML

Title

Bad Santa

Year

2003

Director

Terry Zwigoff







Stars

Billy Bob Thornton, Brett Kelly

Review

Ahhh, the magic of Christmas: Chain-smoking, beer guzzling, fi

Close Insert Film

Film ID	Title	Year	Director	Stars	Review	Options
10004	976-EVIL II: THE RETURN	1988	JIM WYNORSKI		the Devils equivalent of an 0898 taps into the line, hoping to receive t for a young student. Any one who orting role for Brigitte Nielsen as a tan himself.	 
10005	A BETTER TOMORROW	1986	JOHN WOO		ar Chow Yun-Fat and director John sides of the law becoming united in rk (Chow) is crippled and double s badge to help him. Violent and mentary documentary and booklet.	 
10006	A BRONX TALE	1993	ROBERT DE NIRO	ROBERT DE NIRO, CHAZZ PALMINTERI	De Niro's directorial debut, taken from co-star Palminteris own stage play. De Niro leads a cast of virtual unknown as a hard-working Bronx bus driver, alarmed at his sons fascination with the local underworld figures. But the lad is involved even deeper than he knows and soon hell have to confront the gangsters in an effort to win back his sons respect.	 

When “Insert Film” has been pressed again, the modal box should close, and a response will be displayed at the top of the screen based on whether it was a success or fail (the server sends back a response in XML / JSON format depending on how you sent the film data).

**200 : ok**

Film has successfully been inserted (This response was sent in JSON)

Show all films

OR

Search by title

Search

When searching for the inserted film by title, it now displays in the table:

**Search For 'Bad Santa' Has Finished Successfully (Retrieved: xml)**

Show all films

OR

Bad Santa

Search

Return Data As:

XML

Insert Film

Show 10 entries

Film ID	Title	Year	Director	Stars	Review	Options
11338	Bad Santa	2003	Terry Zwigoff	Billy Bob Thornton, Brett Kelly	Ahhh, the magic of Christmas: Chain-smoking, beer guzzling, foul-mouthed Santas, thieving elves and sex-crazed bartenders. Isn't that what the holidays are all about?	<div style="background-color: #ffc107; padding: 2px;">✎</div> <div style="background-color: #dc3545; padding: 2px;">✖</div>

Showing 1 to 1 of 1 entries
 
 Previous 1 Next

To confirm with MySQL Workbench:

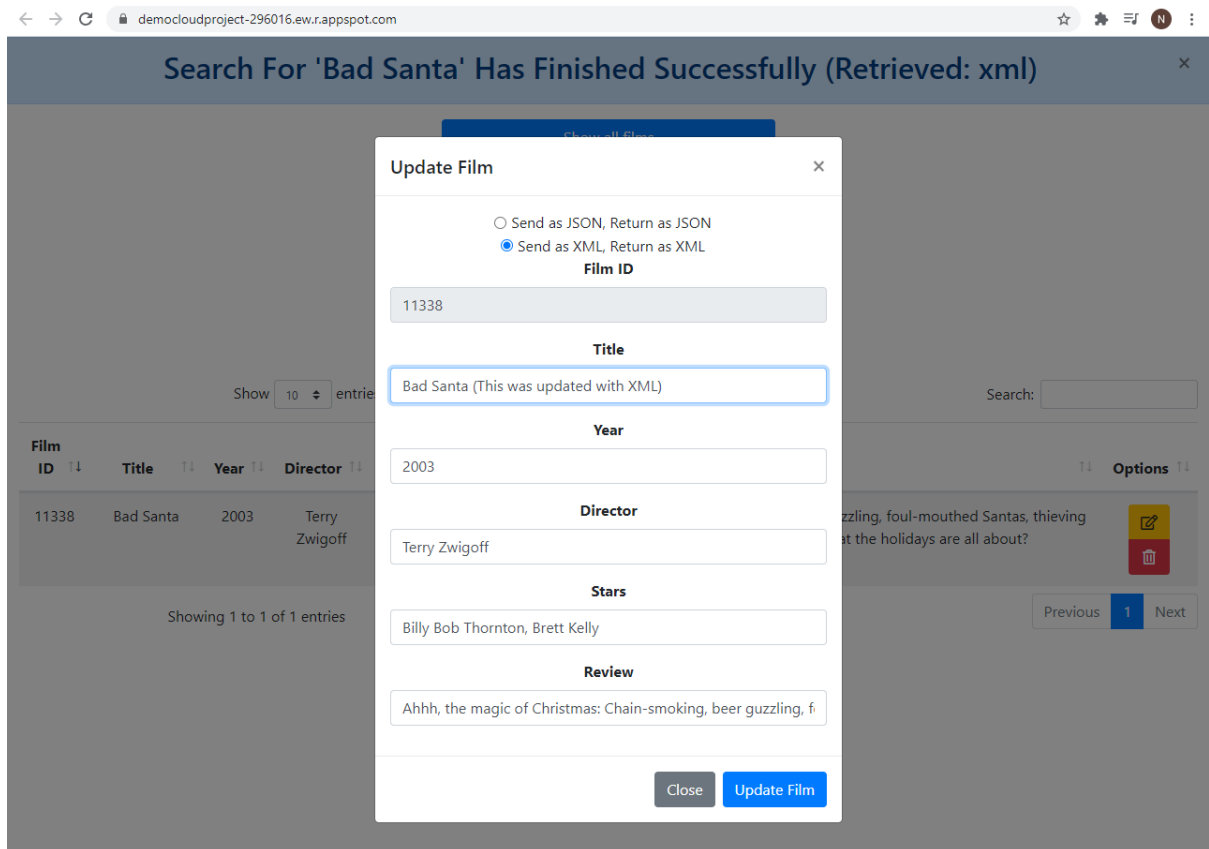
1 • `SELECT * FROM films WHERE films.title LIKE '%Bad Santa%'`

Result Grid

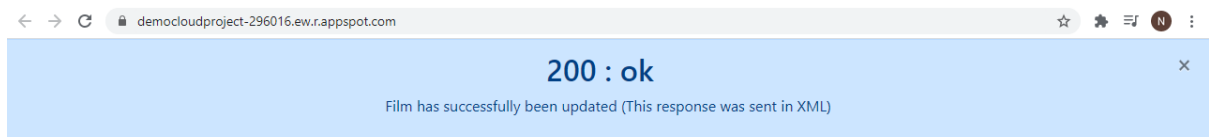
id	title	year	director	stars	review
11338	Bad Santa	2003	Terry Zwigoff	Billy Bob Thornton, Brett Kelly	Ahhh, the magic of Christmas: Chain-smoking, b...

### 3.4 – Update Film

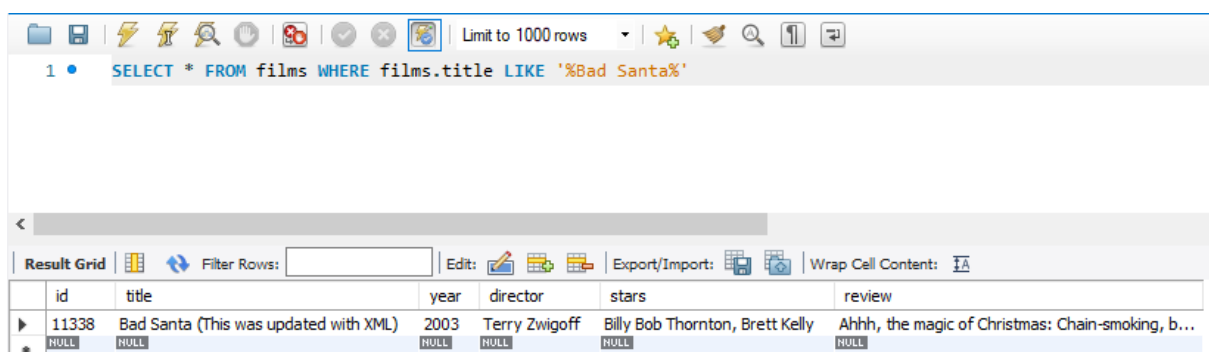
When the update button is pressed on a film row, an update film modal will pop up, with the existing data of that film already set in the input boxes for the user.



When “Update Film” is pressed again on the modal, it will close and a response will be shown at the top of the screen with a message based on whether it succeeded or not.



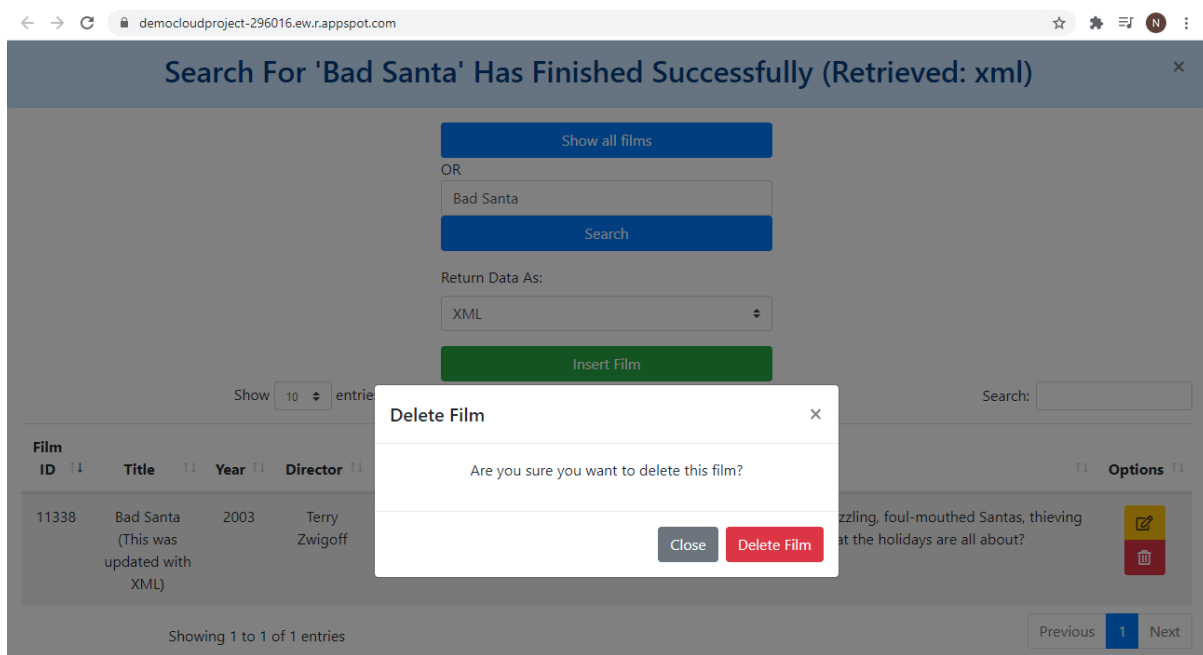
To confirm this update worked using MySQL Workbench:



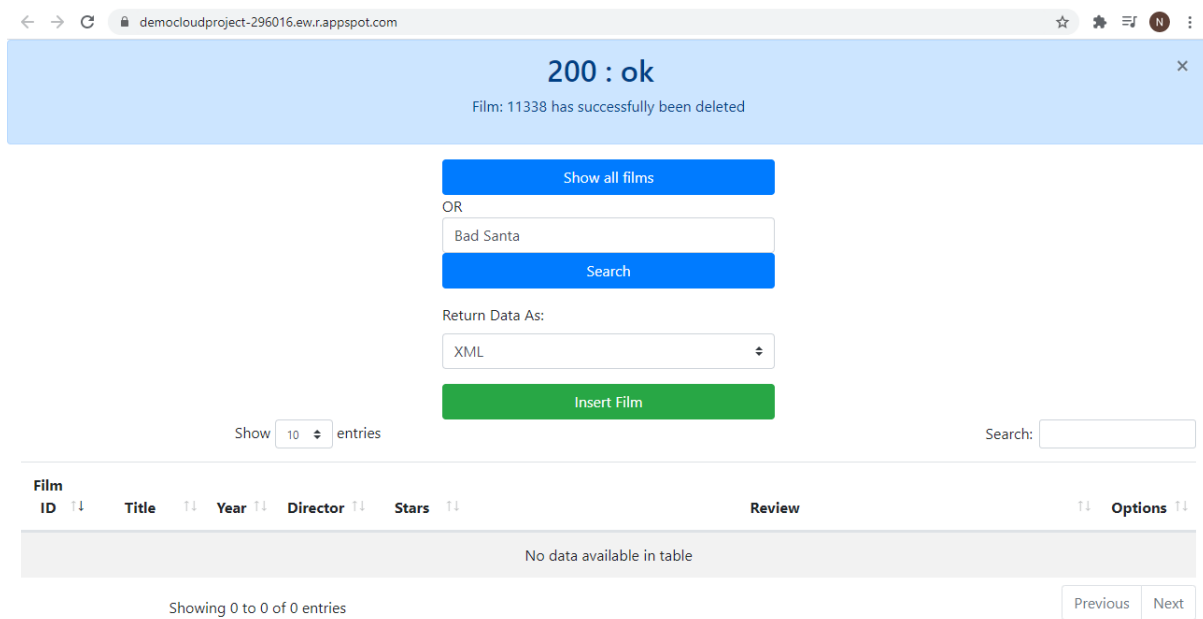
### 3.5 – Delete Film

When the delete button is pressed on the film row, a modal will pop up to confirm whether the user wishes to permanently delete this film.

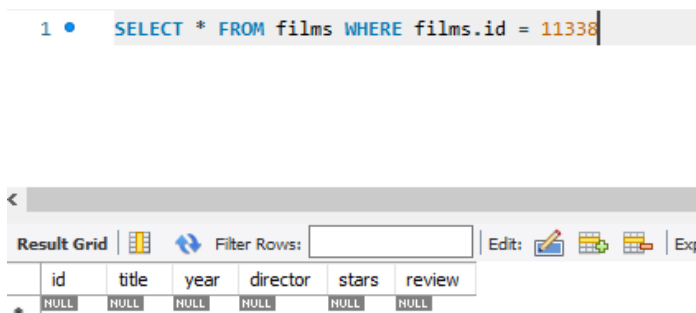




When the delete button is pressed, a response will display at the top of the screen based on whether it was a success or not. If it was a success, the table will remove the row automatically.



To confirm this delete worked using MySQL Workbench:



## 4.0 – Criteria 4 - WSDL File and SOAP Client

The WSDL file can be seen below:

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <wsdl:definitions targetNamespace="http://dao" xmlns:apachesoap="http://xml.apache.org/xml-soap" xmlns:impl="http://dao" xmlns:int
3 <!--WSDL created by Apache Axis version: 1.4
4 Built on Apr 22, 2006 (06:55:48 PDT)-->
5 <wsdl:types>
6 <schema elementFormDefault="qualified" targetNamespace="http://dao" xmlns="http://www.w3.org/2001/XMLSchema">
7 <import namespace="http://model"/>
8 <element name="insertFilm">
9 <complexType>
10 <sequence>
11 <element name="film" type="tns1:Film"/>
12 </sequence>
13 </complexType>
14 </element>
15 <element name="insertFilmResponse">
16 <complexType>
17 <sequence>
18 <element name="insertFilmReturn" type="xsd:int"/>
19 </sequence>
20 </complexType>
21 </element>
22 <element name="updateFilm">
23 <complexType>
24 <sequence>
25 <element name="film" type="tns1:Film"/>
26 </sequence>
27 </complexType>
28 </element>
29 <element name="updateFilmResponse">
30 <complexType>
31 <sequence>
32 <element name="updateFilmReturn" type="xsd:int"/>
33 </sequence>
34 </complexType>
35 </element>
36 <element name="getAllFilmsByTitle">
37 <complexType>
38 <sequence>
39 <element name="searchName" type="xsd:string"/>
40 </sequence>
41 </complexType>
42 </element>
43 <element name="getAllFilmsByTitleResponse">
44 <complexType>
45 <sequence>
46 <element maxOccurs="unbounded" name="getAllFilmsByTitleReturn" type="tns1:Film"/>
47 </sequence>
48 </complexType>
49 </element>
50 <element name="getFilmByID">
51 <complexType>
52 <sequence>
53 <element name="id" type="xsd:int"/>
54 </sequence>
55 </complexType>
56 </element>
57 <element name="getFilmByIDResponse">
58 <complexType>
```

The SOAP Client can be seen below:

← → ↺ ⓘ localhost:8080/FilmSOAPWebServiceClient/sampleFilmTraditionalDAOProxy/TestClient.jsp

### Methods

- [getEndpoint\(\)](#)
- [setEndpoint\(java.lang.String\)](#)
- [getFilmTraditionalDAO\(\)](#)
- [insertFilm\(model.Film\)](#)
- [updateFilm\(model.Film\)](#)
- [getAllFilmsByTitle\(java.lang.String\)](#)
- [getFilmByID\(int\)](#)
- [getAllFilms\(\)](#)
- [deleteFilm\(int\)](#)

### Inputs

id:

### Result

returnp:

stars:

MICKEY ROURKE, KIM BASINGER

review:

Director Lyne shows his pop video roots in this erotic tale reversion of You Can Leave Your Hat On accompanies a Basin

director:

ADRIAN LYNE

year:

1986

title:

9 1/2 WEEKS

id:

10003

## 5.0 – Criteria 5 – RESTful server, With REST type interaction

The project “FilmRESTfulWebService” satisfies this criteria.

This project’s package layout is the same as “FilmHTTPWebService”, however – since it uses Spring, there are a few differences:

- There is one single class within the controller package (our controller class)
- The dao package contains only the interface and the hibernate DAO, rather than the traditional DAO & factory class too (it was already demonstrated in the aforementioned project)
- The utilities package contains only the ResponseUtils class and now has only one method. This is because Spring automatically parses JSON and does the marshalling / unmarshalling of XML for us, methods that parse formats are no longer required
- The model package however is the exact same

When you have imported this project and ran it on tomcat, navigate to the URL for a front-end:

<http://localhost:8080/FilmRESTfulWebService/>

I will be using Postman in order to demonstrate the RESTful type of interface I have implemented.

Resource Path	Request Type
<a href="http://localhost:8080/FilmRESTfulWebService/films">http://localhost:8080/FilmRESTfulWebService/films</a>	<b>GET</b> – Retrieves all films in requested format
<a href="http://localhost:8080/FilmRESTfulWebService/films/{searchName}">http://localhost:8080/FilmRESTfulWebService/films/{searchName}</a>	<b>GET</b> – Retrieves films using the search name as a filter
<a href="http://localhost:8080/FilmRESTfulWebService/films/film/{filmID}">http://localhost:8080/FilmRESTfulWebService/films/film/{filmID}</a>	<b>GET</b> – Retrieves a film by its ID
<a href="http://localhost:8080/FilmRESTfulWebService/films/film">http://localhost:8080/FilmRESTfulWebService/films/film</a>	<b>POST</b> – Create a Film with either JSON or XML format
<a href="http://localhost:8080/FilmRESTfulWebService/films/film/{filmID}">http://localhost:8080/FilmRESTfulWebService/films/film/{filmID}</a>	<b>PUT</b> – Update a Film with either JSON or XML format
<a href="http://localhost:8080/FilmRESTfulWebService/films/film/{filmID}">http://localhost:8080/FilmRESTfulWebService/films/film/{filmID}</a>	<b>DELETE</b> – Delete a film using the ID sent in the path variable.

## 5.1 – Get All Films (JSON)

GET

http://localhost:8080/FilmRESTfulWebService/films

Send

Save

ParamsAuthorizationHeaders (9)BodyPre-request ScriptTestsSettingsCookiesCode

Headers

6 hidden

KEY	VALUE	DESCRIPTION	***	Bulk Edit	Presets
Accept	application/json				

BodyCookiesHeaders (5)Test Results

Status: 200 OKTime: 285 msSize: 628.53 KBSave Response

PrettyRawPreviewVisualizeJSON

```
1 [
2   {
3     "id": 10003,
4     "title": "9 1/2 WEEKS",
5     "year": 1986,
6     "director": "ADRIAN LYNE",
7     "stars": "MICKEY ROURKE, KIM BASINGER",
8     "review": "Director Lyne shows his pop video roots in this erotic tale reputedly based on a true story. Basinger falls for stubble-cheeked
9       Rourke and a steamy, sadomasochistic relationship begins. It lasts the period of the title before the intensity gets too much for
10      her. Joe Cockers version of You Can Leave Your Hat On accompanies a Basinger strip routine and then theres the infamous fridge
11      sequence."
12    },
13    {
14      "id": 10004,
15      "title": "976-EVIL II: THE RETURN",
16      "year": 1988,
17      "director": "JIM WYNORSKI",
18      "stars": "PATRICK OBRYAN, DEBBIE JAMES",
19      "review": "Sequel that still finds the ultimate telephone line, the Devils equivalent of an 0898 number, acquiring victims. The head of a
20        high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any one
21        who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with Satan
22        himself."
23    },
24    {
25      "id": 10005,
26      "title": "A BETTER TOMORROW".
27    }
28  ]
```

## 5.2 – Get All Films (XML)

GET

http://localhost:8080/FilmRESTfulWebService/films

Send

Save

ParamsAuthorizationHeaders (9)BodyPre-request ScriptTestsSettingsCookiesCode

Headers

6 hidden

KEY	VALUE	DESCRIPTION	***	Bulk Edit	Presets
Accept	application/json				
<input checked="" type="checkbox"/> Accept	application/xml				

BodyCookiesHeaders (5)Test Results

Status: 200 OKTime: 398 msSize: 678.65 KBSave Response

PrettyRawPreviewVisualizeXML

```
1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <ns2:filmStore xmlns:ns2="model1">
3   <filmList>
4     <film>
5       <id>10003</id>
6       <title>9 1/2 WEEKS</title>
7       <year>1986</year>
8       <director>ADRIAN LYNE</director>
9       <stars>MICKEY ROURKE, KIM BASINGER</stars>
10      <review>Director Lyne shows his pop video roots in this erotic tale reputedly based on a true story. Basinger falls for
11        stubble-cheeked Rourke and a steamy, sadomasochistic relationship begins. It lasts the period of the title before the intensity
12        gets too much for her. Joe Cockers version of You Can Leave Your Hat On accompanies a Basinger strip routine and then theres the
13        infamous fridge sequence.</review>
14    </film>
15    <film>
16      <id>10004</id>
17      <title>976-EVIL II: THE RETURN</title>
18      <year>1988</year>
19      <director>JIM WYNORSKI</director>
20      <stars>PATRICK OBRYAN, DEBBIE JAMES</stars>
21      <review>Sequel that still finds the ultimate telephone line, the Devils equivalent of an 0898 number, acquiring victims. The head of a
22        high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any
23        one who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with
24        Satan himself.</review>
25    </film>
26  </filmList>
27 </ns2:filmStore>
```

## 5.3 – Get All Films (TEXT)

GET

http://localhost:8080/FilmRESTfulWebService/films

Send

Save

ParamsAuthorizationHeaders (9)BodyPre-request ScriptTestsSettingsCookiesCode

Headers

6 hidden

	KEY	VALUE	DESCRIPTION	...	Bulk Edit	Presets
<input type="checkbox"/>	Accept	application/json				
<input type="checkbox"/>	Accept	application/xml				
<input checked="" type="checkbox"/>	Accept	text/plain				

BodyCookiesHeaders (5)Test Results

Status: 200 OKTime: 492 msSize: 554.49 KBSave Response

PrettyRawPreviewVisualizeText

1

10003#9 1/2 WEEKS#1986#ADRIAN LYNE#MICKEY ROURKE, KIM BASINGER#Director Lyne shows his pop video roots in this erotic tale reputedly based on a true story. Basinger falls for stubble-cheeked Rourke and a steamy, sadomasochistic relationship begins. It lasts the period of the title before the intensity gets too much for her. Joe Cocker's version of You Can Leave Your Hat On accompanies a Basinger strip routine and then there's the infamous fridge sequence.

2

10004#976-EVIL II: THE RETURN#1988#JIM WYNORSKI#PATRICK OBRYAN, DEBBIE JAMES#Sequel that still finds the ultimate telephone line, the Devils equivalent of an 0898 number, acquiring victims. The head of a high school taps into the line, hoping to receive supernatural powers to help him in his obsessive lust for a young student. Any one who gets in his way suffers a horrible death. With a supporting role for Brigitte Nielsen as a seductress in league with Satan himself.

3

10005#A BETTER TOMORROW#1986#JOHN WOO#CHOW YUN-FAT, LESLIE CHEUNG#The film which brought international stardom to star Chow Yun-Fat and director John Woo. A roller-coaster of a ride with brothers on both sides of the law becoming united in their quest for personal revenge. After forger Mark (Chow) is crippled and double crossed by an associate, cop Kit (Cheung) risks his badge to help him. Violent and gripping. Also available as a boxed set with a supplementary documentary and booklet.

4

10006#A BRONX TALE#1993#ROBERT DE NIRO#ROBERT DE NIRO, CHAZZ PALMINTERI#De Niro's directorial debut, taken from co-star Palminteri's own stage play. De Niro leads a cast of virtual unknowns as a hard-working Bronx bus driver, alarmed at his sons' fascination with the local underworld figures. But the lad is involved even deeper than he knows and soon hell have to confront the gangsters in an effort to win back his sons' respect.

5

10008#A FLY GYNN MEM#1997#ROB REINER#TOM CRUISE, JACK NICHOLSON#After the mysterious death of a young Madge in the kitchen, a young girl leaves

## 5.4 – Get Films By Title (JSON)

GET

http://localhost:8080/FilmRESTfulWebService/films/nightmare

Send

Save

ParamsAuthorizationHeaders (9)BodyPre-request ScriptTestsSettingsCookiesCode

Headers

6 hidden

	KEY	VALUE	DESCRIPTION	...	Bulk Edit	Presets
<input type="checkbox"/>	Accept	application/json				
<input type="checkbox"/>	Accept	application/xml				
<input type="checkbox"/>	Accept	text/plain				

BodyCookiesHeaders (5)Test Results

Status: 200 OKTime: 97 msSize: 2.18 KBSave Response

PrettyRawPreviewVisualizeJSON

1

{

2

{

3

"id": 10013,

4

"title": "A NIGHTMARE ON ELM ST. PART 2",

5

"year": 1985,

6

"director": "JACK SHOLDER",

7

"stars": "ROBERT ENGLUND, KIM MYERS",

8

"review": "Confused sequel with the spirit of Freddy Krueger coming back to possess a young teenager (Mark Patton). Soon he's dispatching his enemies, such as a sadistic gym teacher, until Freddy makes his return to the real world and causes havoc at a poolside party. Not the best in the series."

9

},

10

{

11

"id": 10014,

12

"title": "A NIGHTMARE ON ELM STREET",

13

"year": 1984,

14

"director": "WES CRAVEN",

15

"stars": "HEATHER LANGENKAMP, JOHN SAXON",

16

"review": "The one that started the long-running Freddy Krueger series and still the best. When a group of teenagers start to have dreams about a scarred killer wearing a glove with blades on the fingers, they do not know that he is coming back for revenge for being murdered by their parents years before. When the kids start to die one girl tries to unravel the horrifying mystery of his identity. A very early performance from a young Johnny Depp."

17

},

18

{

19

"id": 10015,

20

"title": "A NIGHTMARE ON ELM STREET PART 6 - FREDDY'S DEAD",

## 5.5 – Get Films By Title (XML)

GET

http://localhost:8080/FilmRESTfulWebService/films/nightmare

Send

Save

Params

Authorization

Headers (9)

Body

Pre-request Script

Tests

Settings

Cookies

Code

KEY	VALUE	DESCRIPTION	...	Bulk Edit	Presets
<input type="checkbox"/> Accept	application/json				
<input checked="" type="checkbox"/> Accept	application/xml				
<input type="checkbox"/> Accept	text/plain				
Key	Value	Description			

Body

Cookies

Headers (5)

Test Results

Status: 200 OK

Time: 95 ms

Size: 2.45 KB

Save Response

Pretty

Raw

Preview

Visualize

XML

```
1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <ns2:filmStore xmlns:ns2="model">
3   <filmList>
4     <film>
5       <id>10013</id>
6       <title>A NIGHTMARE ON ELM ST. PART 2</title>
7       <year>1985</year>
8       <director>JACK SHOLDER</director>
9       <stars>ROBERT ENGLUND, KIM MYERS</stars>
10      <review>Confused sequel with the spirit of Freddy Krueger coming back to possess a young teenager (Mark Patton). Soon hes dispatching
        his enemies, such as a sadistic gym teacher, until Freddy makes his return to the real world and causes havoc at a poolside party.
        Not the best in the series.</review>
11    </film>
12    <film>
13      <id>10014</id>
14      <title>A NIGHTMARE ON ELM STREET</title>
15      <year>1984</year>
16      <director>WES CRAVEN</director>
17      <stars>HEATHER LANGENKAMP, JOHN SAXON</stars>
18      <review>The one that started the long-running Freddy Krueger series and still the best. When a group of teenagers start to have dreams
        about a scarred killer wearing a glove with blades on the fingers, they do not know that he is coming back for revenge for being
        murdered by their parents years before. When the kids start to die one girl tries to unravel the horrifying mystery of his
        identity. A very early performance from a young Johnny Depp.</review>
19    </film>
```

## 5.6 - Get Films By Title (TEXT)

GET

http://localhost:8080/FilmRESTfulWebService/films/nightmare

Send

Save

Params

Authorization

Headers (9)

Body

Pre-request Script

Tests

Settings

Cookies

Code

KEY	VALUE	DESCRIPTION	...	Bulk Edit	Presets
<input type="checkbox"/> Accept	application/json				
<input type="checkbox"/> Accept	application/xml				
<input checked="" type="checkbox"/> Accept	text/plain				
Key	Value	Description			

Body

Cookies

Headers (5)

Test Results

Status: 200 OK

Time: 94 ms

Size: 1.94 KB

Save Response

Pretty

Raw

Preview

Visualize

Text

```
1 10013#A NIGHTMARE ON ELM ST. PART 2#1985#JACK SHOLDER#ROBERT ENGLUND, KIM MYERS#Confused sequel with the spirit of Freddy Krueger coming back to
  possess a young teenager (Mark Patton). Soon hes dispatching his enemies, such as a sadistic gym teacher, until Freddy makes his return to the
  real world and causes havoc at a poolside party. Not the best in the series.
2 10014#A NIGHTMARE ON ELM STREET#1984#WES CRAVEN#HEATHER LANGENKAMP, JOHN SAXON#The one that started the long-running Freddy Krueger series and
  still the best. When a group of teenagers start to have dreams about a scarred killer wearing a glove with blades on the fingers, they do not
  know that he is coming back for revenge for being murdered by their parents years before. When the kids start to die one girl tries to unravel
  the horrifying mystery of his identity. A very early performance from a young Johnny Depp.
3 10015#A NIGHTMARE ON ELM STREET PART 6 - FREDDYS DEAD#1991#RACHEL TALALAY#ROBERT ENGLUND, LISA ZANE#The man of your dreams is about to go
  bye-byes, as he finally gets his comeuppance after taking on his own daughter (somebody never even mentioned in the series so far). Some of
  the cassettes available included the last reel in 3D, although you need the special glasses. And yes, hes well and truly dead. Until Wes
  Cravens New Nightmare that is!!
4 10719#NIGHTMARE ON ELM STREET 3 - DREAM WARRIORS#1987#CHUCK RUSSELL#ROBERT ENGLUND, PATRICA ARQUETTE#Possibly the best of the sequels, with Freddy
  Krueger infiltrating the dreams of a group of disturbed teenagers who are under the care of therapist Nancy Thompson (Heather Langenkamp from
  the first film). Clever plot twists actually form part of the story rather than just being special effects set-pieces as in the later films.
  Also features Larry Fishburne, Craig Wasson and screen veteran John Saxon.
5
```

## 5.7 – Get Film By ID (JSON)

Get film by ID

Examples 0 BUILD

GET http://localhost:8080/FilmRESTfulWebService/films/film/10038 Send Save

Params Authorization Headers (9) Body Pre-request Script Tests Settings Cookies Code

KEY	VALUE	DESCRIPTION
<input type="checkbox"/> Accept	application/json	
<input type="checkbox"/> Accept	application/xml	
<input type="checkbox"/> Accept	text/plain	
Key	Value	Description

Body Cookies Headers (5) Test Results Status: 200 OK Time: 116 ms Size: 690 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": 10038,
3   "title": "AIR FORCE ONE",
4   "year": 1997,
5   "director": "WOLFGANG PETERSEN",
6   "stars": "HARRISON FORD, GARY OLDMAN",
7   "review": "Taut and exciting action thriller with Harrison Ford as a surprisingly plausible President of the USA, trapped aboard the official
8     plane when it is taken over by dedicated terrorists, led by a maniacal Gary Oldman. They want the release of a rebel Chechyan leader or
       they will kill everyone on the plane, beginning with the Presidents family. Corking stuff from the director of In The Line Of Fire."
}
```

## 5.8 – Get Film By ID (XML)

GET http://localhost:8080/FilmRESTfulWebService/films/film/10038 Send Save

Params Authorization Headers (9) Body Pre-request Script Tests Settings Cookies Co

KEY	VALUE	DESCRIPTION
<input type="checkbox"/> Accept	application/json	
<input checked="" type="checkbox"/> Accept	application/xml	
<input type="checkbox"/> Accept	text/plain	
Key	Value	Description

Body Cookies Headers (5) Test Results Status: 200 OK Time: 97 ms Size: 784 B Save Response

Pretty Raw Preview Visualize XML

```
1 <?xml version="1.0" encoding="UTF-8" standalone="yes">
2 <film>
3   <id>10038</id>
4   <title>AIR FORCE ONE</title>
5   <year>1997</year>
6   <director>WOLFGANG PETERSEN</director>
7   <stars>HARRISON FORD, GARY OLDMAN</stars>
8   <review>Taut and exciting action thriller with Harrison Ford as a surprisingly plausible President of the USA, trapped aboard the official
9     plane when it is taken over by dedicated terrorists, led by a maniacal Gary Oldman. They want the release of a rebel Chechyan leader or
       they will kill everyone on the plane, beginning with the Presidents family. Corking stuff from the director of In The Line Of Fire.</
     review>
9 </film>
```

## 5.9 – Get Film By ID (TEXT)

Get film by ID

Examples 0 BUILD

GET http://localhost:8080/FilmRESTfulWebService/films/film/10038 Send Save

Params Authorization Headers (9) Body Pre-request Script Tests Settings Cookies Code

KEY	VALUE	DESCRIPTION
<input type="checkbox"/> Accept	application/json	
<input type="checkbox"/> Accept	application/xml	
<input checked="" type="checkbox"/> Accept	text/plain	
Key	Value	Description

Body Cookies Headers (5) Test Results Status: 200 OK Time: 99 ms Size: 619 B Save Response

Pretty Raw Preview Visualize Text

```
1 10038#AIR FORCE ONE#1997#WOLFGANG PETERSEN#HARRISON FORD, GARY OLDMAN#Taut and exciting action thriller with Harrison Ford as a surprisingly plausible President of the USA, trapped aboard the official plane when it is taken over by dedicated terrorists, led by a maniacal Gary Oldman. They want the release of a rebel Chechyan leader or they will kill everyone on the plane, beginning with the Presidents family. Corking stuff from the director of In The Line Of Fire.
```

## 5.10 – Insert Film (JSON)

Headers used:

POST http://localhost:8080/FilmRESTfulWebService/films/film

Params Authorization Headers (10) Body Pre-request Script Tests

Headers 8 hidden

KEY	VALUE
<input checked="" type="checkbox"/> Accept	application/json
<input checked="" type="checkbox"/> Content-Type	application/json
Key	Value

Body and response:

POST http://localhost:8080/FilmRESTfulWebService/films/film Send Save

Params Authorization Headers (10) Body Pre-request Script Tests Settings Cookies Code

none form-data x-www-form-urlencoded raw binary GraphQL JSON Beautify

```
1 {
2   "title": "This is some JSON RAW Data",
3   "year": 1979,
4   "director": "RIDLEY SCOTT",
5   "stars": "SIGOURNEY WEAVER, IAN HOLM",
6   "review": "The original and many believe still the best, the terrifying tale of what happens when the crew of the spaceship Nostromo are revived to answer a distress call from a nearby planet, and soon take on an unwelcome extra passenger. Brilliant direction and suspense, with design by Swiss artist H.R.Giger and a strong cast including Tom Skerritt, John Hurt, Veronica Cartwright, Harry Dean Stanton and Jones the cat."
7 }
```

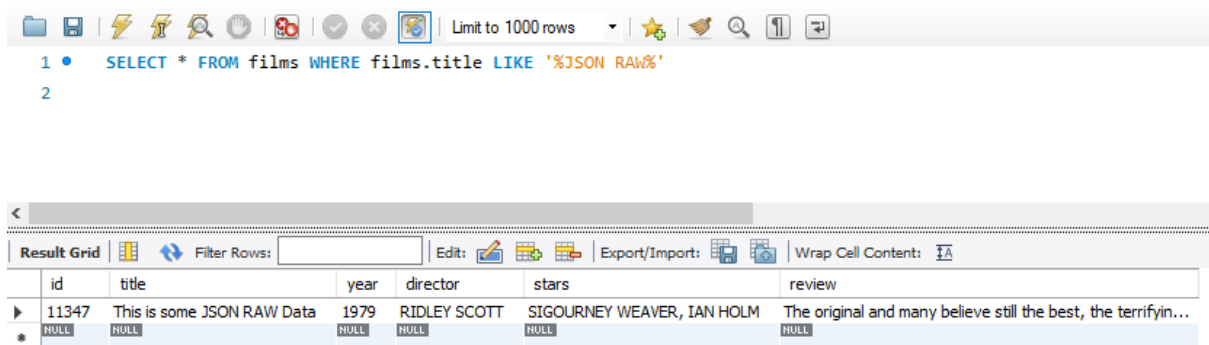
Body Cookies Headers (5) Test Results Status: 201 Created Time: 241 ms Size: 254 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "response": "200 : ok",
3   "message": "Film has successfully been inserted"
4 }
```

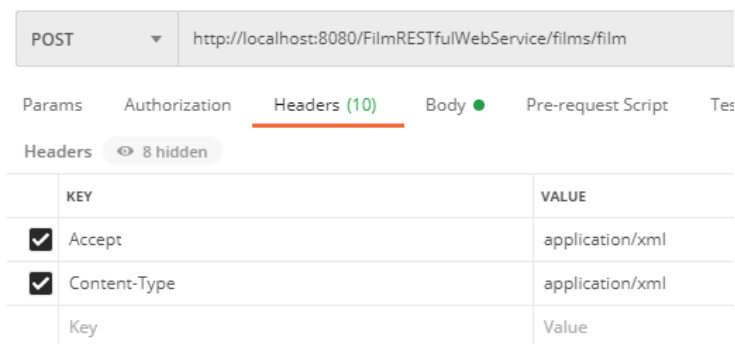
MySQL workbench to confirm it was inserted:



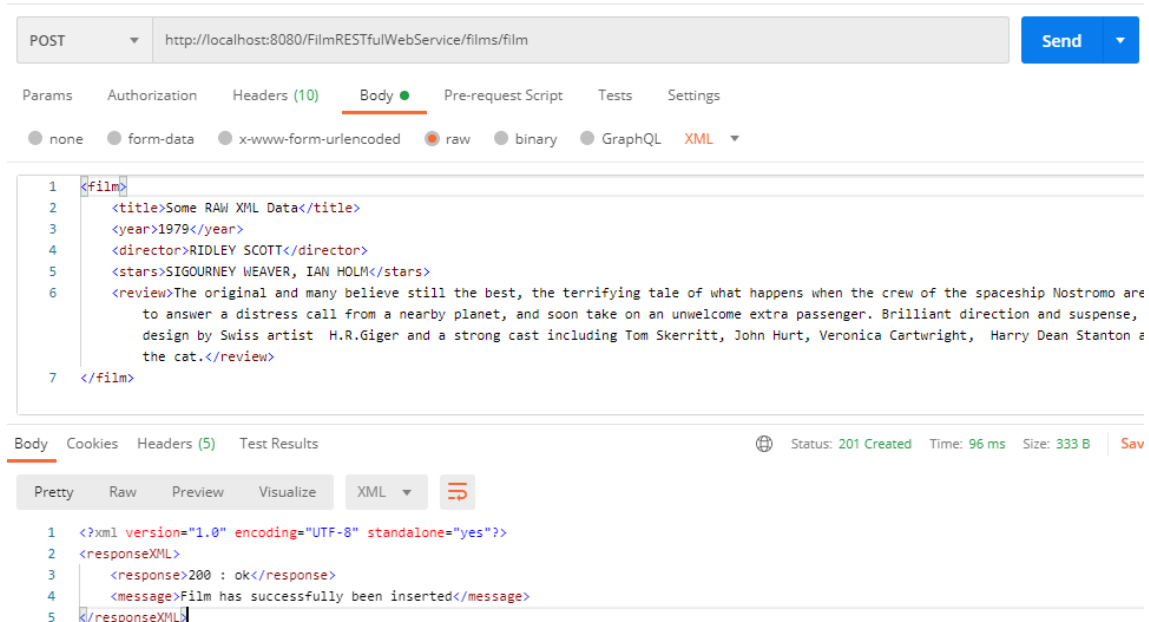


## 5.11 – Insert Film (XML)

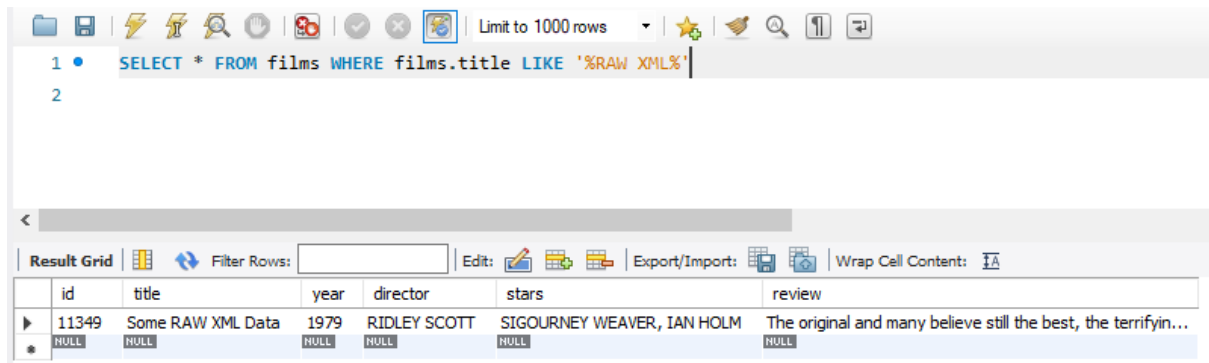
Headers used:



Body and response:

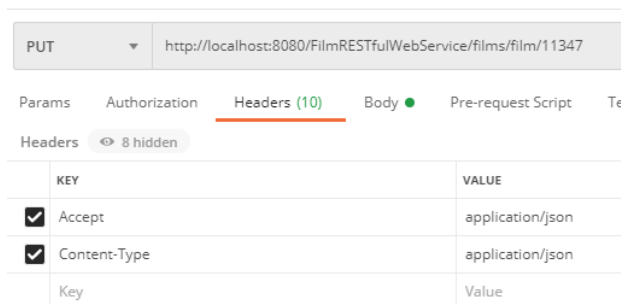


MySQL workbench to confirm it was inserted:

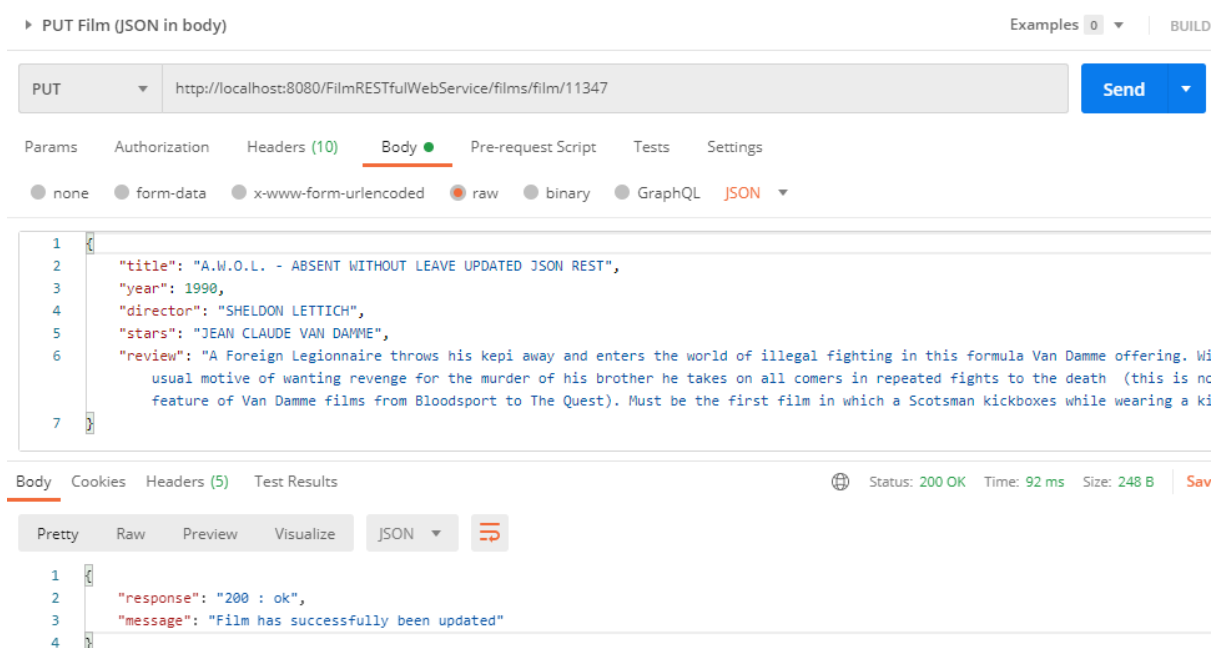


## 5.12 – Update Film (JSON)

Headers used:



Body and response:



MySQL workbench to confirm it was updated:

Query 1 x

Limit to 1000 rows

```
1 • SELECT * FROM films WHERE films.id = 11347
2
```

Result Grid

id	title	year	director	stars	review
11347	A.W.O.L. - ABSENT WITHOUT LEAVE UPDATED JSON REST	1990	SHELDON LETTICH	JEAN CLAUDE VAN DAMME	A Foreign Legionnaire throws his kepi away and enters ...

## 5.13 – Update Film (XML)

Headers used:

► PUT Film (XML in body)

PUT http://localhost:8080/FilmRESTfulWebService/films/film/11349

Params Authorization Headers (10) Body ● Pre-request Script Test

Headers 8 hidden

KEY	VALUE
<input checked="" type="checkbox"/> Accept	application/xml
<input checked="" type="checkbox"/> Content-Type	application/xml
Key	Value

Body and response:

► PUT Film (XML in body) Examples 0 BUILD

PUT http://localhost:8080/FilmRESTfulWebService/films/film/11349 Send

Params Authorization Headers (10) Body ● Pre-request Script Tests Settings

● none ● form-data ● x-www-form-urlencoded ● raw ● binary ● GraphQL XML ▼

```

1
2 <film>
3   <title>A.W.O.L. - ABSENT WITHOUT LEAVE UPDATED XML RAW Update</title>
4   <year>1990</year>
5   <director>SHELDON LETTICH</director>
6   <stars>JEAN CLAUDE VAN DAMME</stars>
7   <review>A Foreign Legionnaire throws his kepi away and enters the world of illegal fighting in this formula Van Damme offering. With
      motive of wanting revenge for the murder of his brother he takes on all comers in repeated fights to the death (this is now a fe
      Van Damme films from Bloodsport to The Quest). Must be the first film in which a Scotsman kickboxes while wearing a kilt.....</re
8 </film>

```

Body Cookies Headers (5) Test Results Status: 200 OK Time: 139 ms Size: 327 B Sav

Pretty Raw Preview Visualize XML ▼ ⌵

```

1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <responseXML>
3   <response>200 : ok</response>
4   <message>Film has successfully been updated</message>
5 </responseXML>

```

MySQL workbench to confirm it was updated:

Query 1

```
1 • SELECT * FROM films WHERE films.id = 11349
```

2

Result Grid

id	title	year	director	stars	review
11349	A.W.O.L. - ABSENT WITHOUT LEAVE UPDATED XML RAW Update	1990	SHELDON LETTICH	JEAN CLAUDE VAN DAMME	A Foreign Legionnaire throws his kepi away and enters ...
*	NULL	NULL	NULL	NULL	NULL

## 5.14 – Delete Film (JSON Response)

DELETE Film

Examples 0 BUILD

DELETE  Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings

Headers 6 hidden

KEY	VALUE	DESCRIPTION	*** Bulk Edit
<input checked="" type="checkbox"/> Accept	application/json		
<input type="checkbox"/> Accept	application/xml		
Key	Value	Description	

Body Cookies Headers (5) Test Results

Status: 200 OK Time: 132 ms Size: 248 B Save

Pretty Raw Preview Visualize JSON

```
1 {
2   "response": "200 : ok",
3   "message": "Film has successfully been deleted"
4 }
```

MySQL Workbench to confirm it was deleted:

Query 1

```
1 • SELECT * FROM films WHERE films.id = 11347
```

2

Result Grid

id	title	year	director	stars	review
*	NULL	NULL	NULL	NULL	NULL

## 5.15 – Delete Film (XML Response)

DELETE Film Examples 0 BUILD

DELETE http://localhost:8080/FilmRESTfulWebService/films/film/11349 Send

Params Authorization **Headers (8)** Body Pre-request Script Tests Settings

Headers 6 hidden

	KEY	VALUE	DESCRIPTION	***	Bulk Edit
<input type="checkbox"/>	Accept	application/json			
<input checked="" type="checkbox"/>	Accept	application/xml			
	Key	Value	Description		

Body Cookies Headers (5) Test Results Status: 200 OK Time: 113 ms Size: 327 B Save

Pretty Raw Preview Visualize XML ≡

```
1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <responseXML>
3   <response>200 : ok</response>
4   <message>Film has successfully been deleted</message>
5 </responseXML>
```

MySQL Workbench to confirm it was deleted:

Limit to 1000 rows

```
1 SELECT * FROM films WHERE films.id = 11349
2
```

Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content

id	title	year	director	stars	review
NULL	NULL	NULL	NULL	NULL	NULL

## 6.0 – Conclusion

This document has hopefully demonstrated the full functionality that has been implemented in order to satisfy the criteria to the fullest.

- A HTTP API utilizing all CRUD features was implemented and tested
- The data can be returned in all three different formats - XML, JSON (default), TEXT – using GSON and JAXB as one solution (in FilmHTTPWebService), and with Spring for another (FilmRESTfulWebService) – enabling the web service to cope with a range of data objects
- Google App Engine was used with the original code from the FilmHTTPWebService project, and Cloud SQL (a google database) was then added to make it a complete cloud solution. This was tested for all CRUD operations
- A WSDL file and a SOAP client was generated, and has been further discussed in the critical analysis
- A RESTful service was implemented and tested using Spring, with the correct interface for all CRUD operations
- An AJAX based web front-end was created and used for three of the solutions (HTTP, REST, Cloud). This utilized jQuery for AJAX and the majority of the JavaScript code, and used DataTables to dynamically generate the table; this was further styled with bootstrap, providing an “enhanced user interface”

The critical analysis is located in another document and should be grouped together with this and the project solutions. This critical analysis contains a detailed discussion on each of the API's (HTTP, REST, SOAP), WSDL's, the sound Software Engineering techniques, approaches taken throughout this assignment, and more.