



# Combining Faceted Search with Data-analytic Visualizations on Top of a SPARQL Endpoint

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# Contents

- Introduction
- Case studies
  - WarSampo
  - Vanhat Norssit in Semantic Web
  - BiographySampo
  - U.S. Congress Prosopographer
- Summary

# Introduction

# SPARQL-Faceter

(<https://github.com/SemanticComputing/angular-semantic-faceted-search>)

- Lightweight client-side solution
- Angular JS as framework
- Search large datasets from SPARQL endpoints
- Person search with certain criteria
- Extendable to data-analytic visualizations

# WarSampo – Finnish WW II on the Semantic Web

# WarSampo

The casualties page has four different views:

- Table-like result view
- Age distribution
- Personal life paths
- Bar Charts

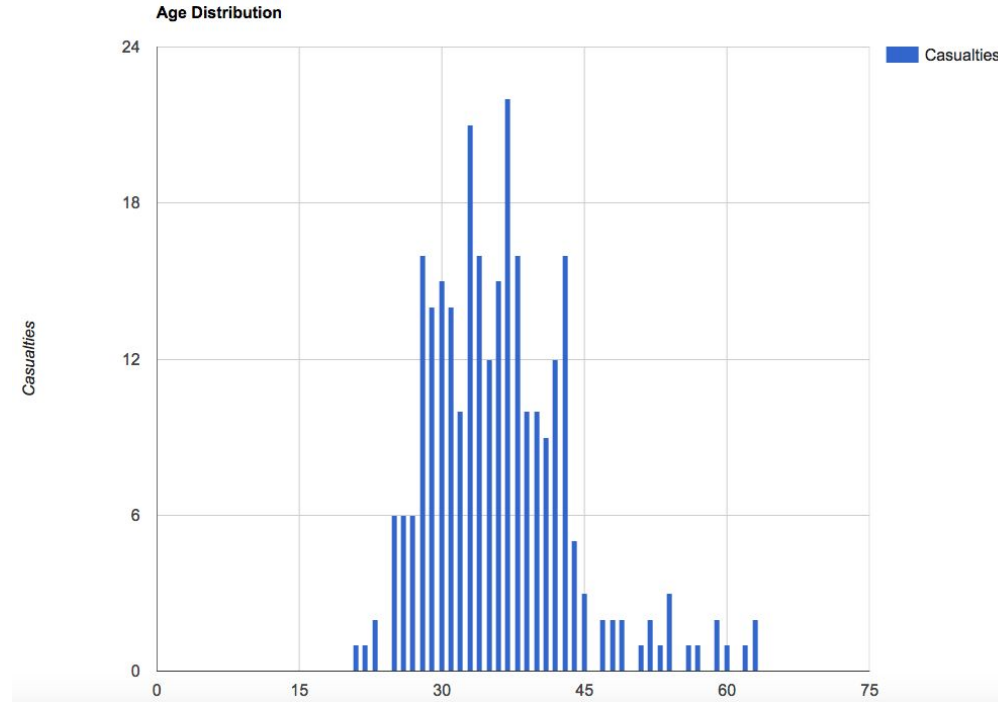
# Table-like result view

Person search by chosen criteria on the left side faceter

The screenshot shows the WarSampo website interface. At the top, there is a navigation bar with 'Perspectives', 'Help (Casualties)', 'Suomeksi', 'Results Display', 'Feedback', 'Info', and 'Instructions'. Below the navigation bar is a row of 15 small portraits of soldiers. The main heading is 'Casualties 1939-45'. Below the heading is a search description: 'Search The National Archives war casualty database as linked data, consisting of Finnish WW2 death records. You can narrow the results by using the filters and browse information regarding the persons via the links in the results.' The main content is a table with columns: Name, Rank, Born, Died, Age, Military Unit, Perishing Class, Cemetery, Occupation, and Children. The table contains 15 rows of data. On the left side, there is a faceted search interface with various filters: Name, Date of Death, Birth Municipality, Cemetery, Residence Municipality, Death Municipality, Rank, Occupation, and Marital Status. The Marital Status filter is expanded, showing options: No Selection -- (9467), Divorced (114), Married (31599), Not married (59770), Unknown (2914), and Widow (278).

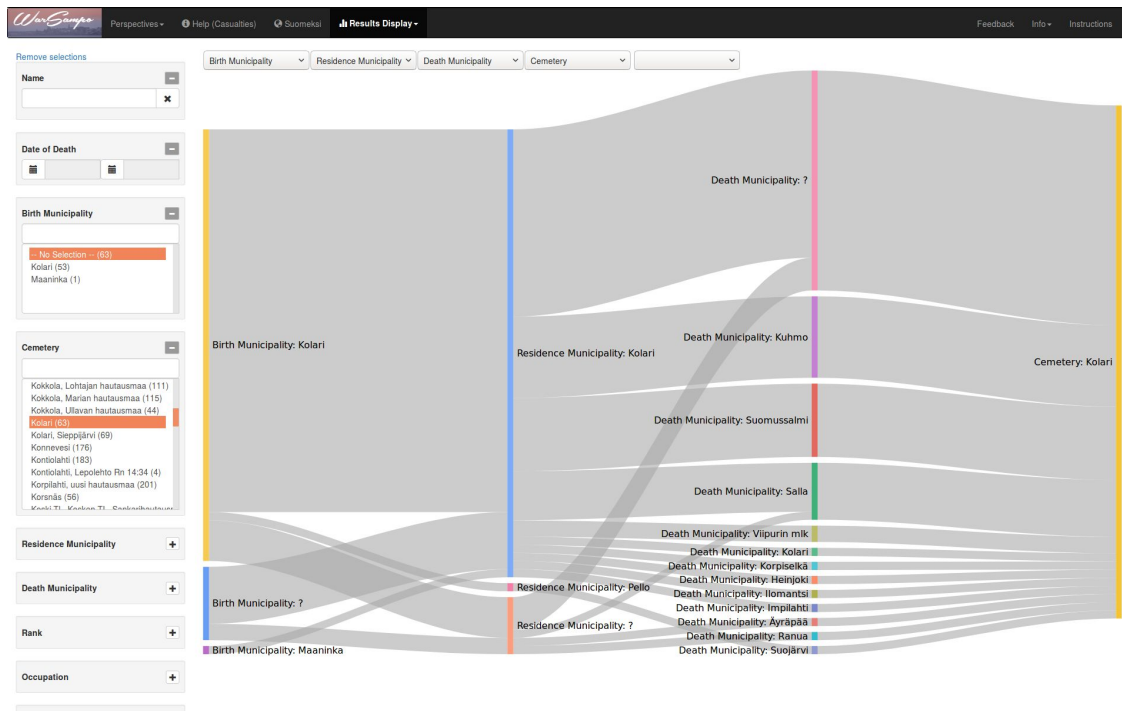
Name	Rank	Born	Died	Age	Military Unit	Perishing Class	Cemetery	Occupation	Children
Aarnio, Erkki Aarre	Private	12.11.1915 Helsinki	26.10.1941 Munjärvi	25	Jääkäripataljoona 7.3. komppania	Killed in action, body evacuated and buried	Helsinki, Hietaniemen sankarihautausmaa	metallityömiehes	0
Ahtech, Faini		03.03.1903 Sortavala	05.07.1942 Kuusamo	39	Sotilaskotilisto	Killed in action, body evacuated and buried	Helsinki, Hietaniemen sankarihautausmaa	kirjuri	1
Ahqvist, Yrjö Edvard	Private	22.03.1901 Mäntsälä	03.08.1941 Ruskeala	40	Jalkaväkirykmentti 58	Killed in action, body evacuated and buried	Nurmijärvi, Nurmijärven sankarihautausmaa	maatömiehes	3
Alonen, Oskari	Private	18.11.1898 Sysmä	09.11.1941 Syväri	42	Jalkaväkirykmentti 22. III pataljoona	Killed in action, body evacuated and buried	Sysmä, Pyhän Olavin kirkon hautausmaa	puuseppä	1
Alén, Kauno Kalevo	Lance Corporal	09.10.1911 Vihti	13.11.1941 32 SotS	30	Jalkaväkirykmentti 12.7. komppania	Died of wounds, buried	Helsinki, Hietaniemen sankarihautausmaa	työmiehes	0
Aspe, Eero Oskari	Private	09.01.1908 Pori	30.07.1941 36 KS	33	36. läänrikinkomppania	Death not directly caused by war (sickness, accident, suicide, etc.)	Pori, Kesk. Pöytähaudausmaa	edustaja	
Autio, Mattias Aukusti	Private	25.05.1908 Seinäjoki	24.12.1939 Taipaleenjoki, Mieläpirtti	31	Jalkaväkirykmentti 23	Killed in action, body evacuated and buried	Seinäjoki, Seinäjoen seurakunnan Törmävän hautausmaa	maanviljelijä	1
Autio, Väinö	Private	05.03.1909 Savitpaale	22.12.1939 Muolaa	30	Jalkaväkirykmentti 4	Killed in action, body left behind or destroyed	Savitpaale	maanviljelijän poika	
Bergström, Karl Fjalar	Sergeant	24.10.1911 Helsinki	02.12.1941 38 KS	30	2. rautatiepataljoni	Died of wounds, buried	Helsinki, Hietaniemen sankarihautausmaa	vahvistamies	0
Eriksson, Erik Vilhelm	Private	09.08.1901	20.05.1942 16 KS	40	Autokeskusvarikko 1	Death not directly caused by war (sickness, accident, suicide, etc.)		auton asentaja	1
Ervonen, Aleksanteri	Private	06.05.1906 Soanlahi	16.12.1939 Riifasalmi, Korpisekä	33	Jalkaväkirykmentti 37.8. komppania	Killed in action, body left behind or destroyed		maanviljelijä	1
Pippula, Lauri	Corporal	04.03.1907 Isokyrö	05.07.1944	37	Jalkaväkirykmentti 7.7. komppania	Presumed killed in action	Isokyrö, Isokyrön kirkkohaudausmaa, sankarihautausmaa	maanviljelijä	

# Age Distribution



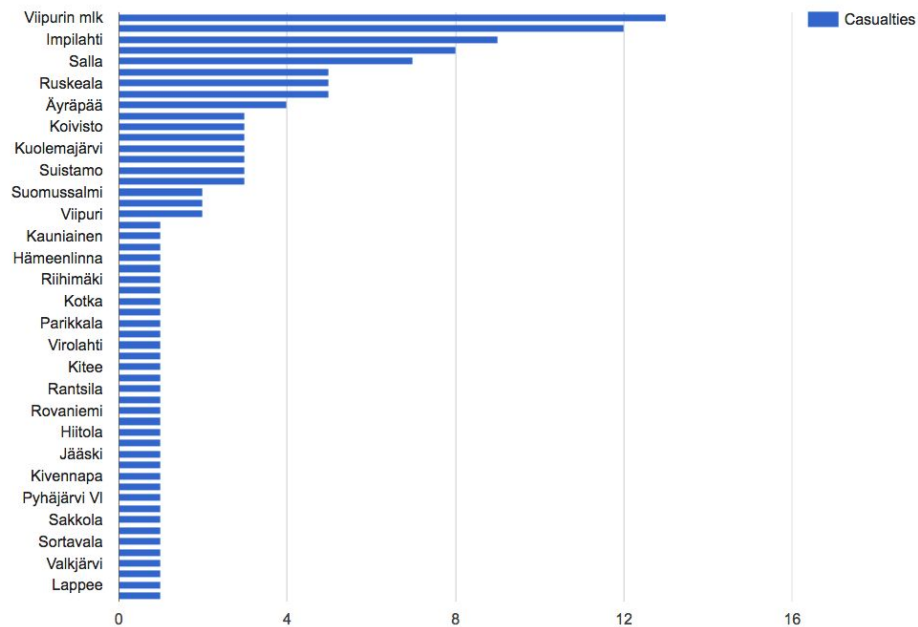


# Life Paths



# Bar Charts

Distribution of property values, e.g. place of deaths:



# Vanhat Norssit in Semantic Web

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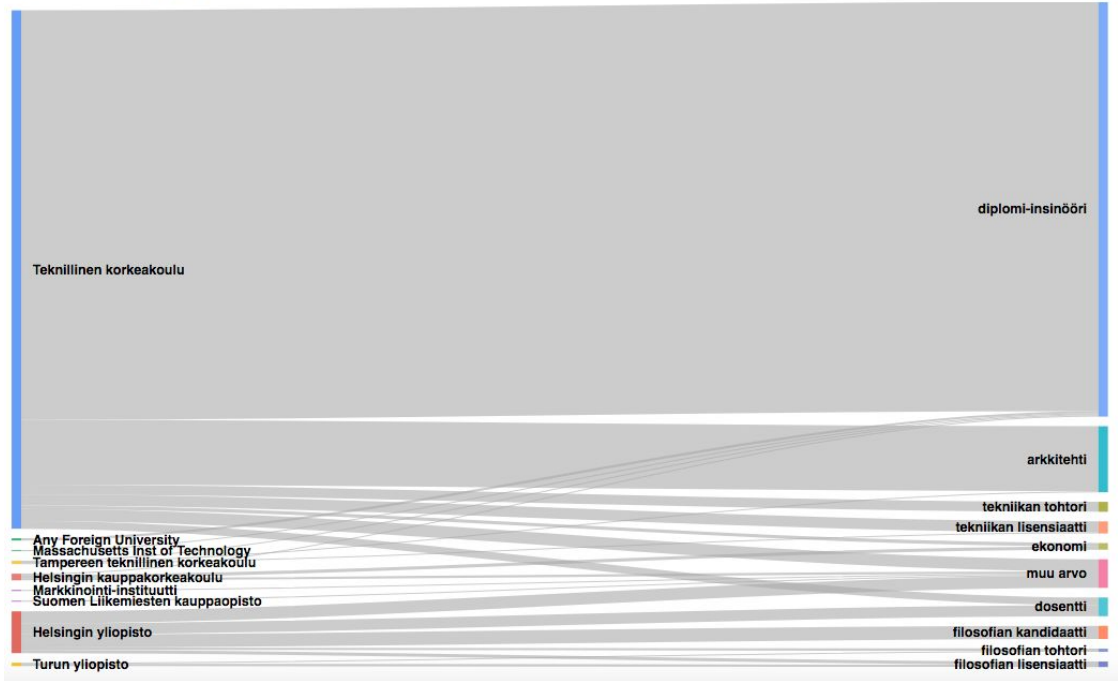
The highschool alumni site has three different views:

- Table-like result view
- Pie Charts and Sankey Diagrams
- Column Charts

# Sankey Diagram

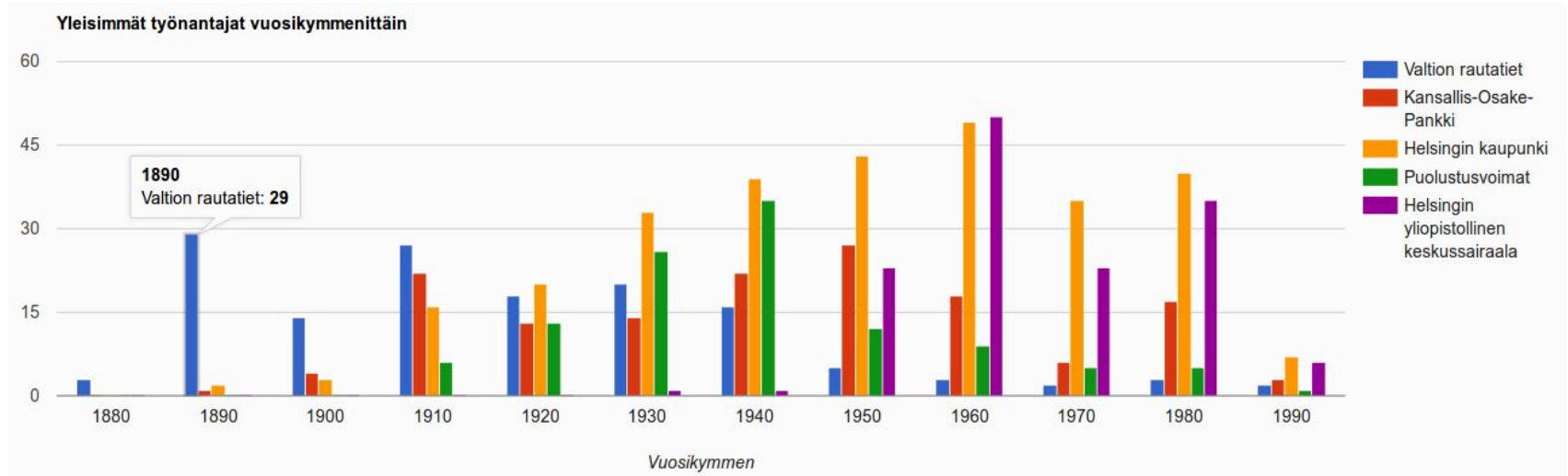
Links a school with a profession:

Oppilaitoksista saatuja oppiarvoja



# Column Charts

## Distribution of most common employers:



# U.S. Congress Prosopographer

# U.S. Congress Prosopographer

The U.S. Congress Prosopographer

(<https://semanticcomputing.github.io/congress-legislators/>)

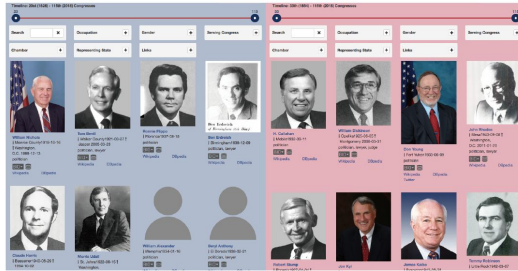
has four different views:

- Grid-like result view for people
- Maps
- Chart
- Graphs

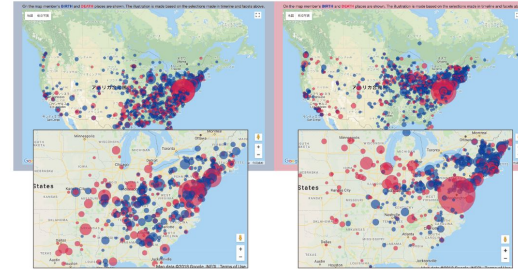


# Comparing Democratic vs. Republican:

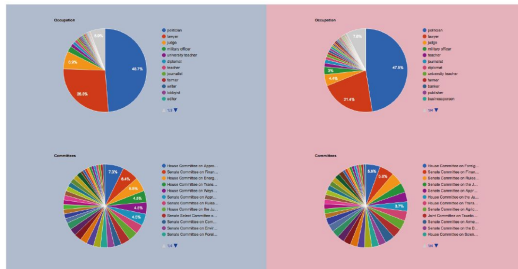
## Grid (Individuals)



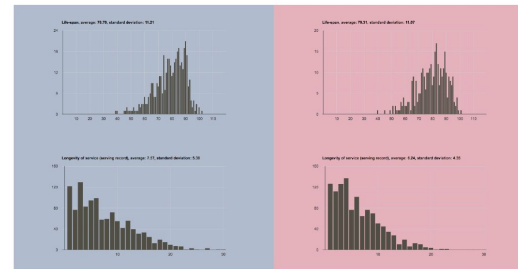
## Map



## Chart



## Graph



# BiographySampo – Semantic National Biography of Finland

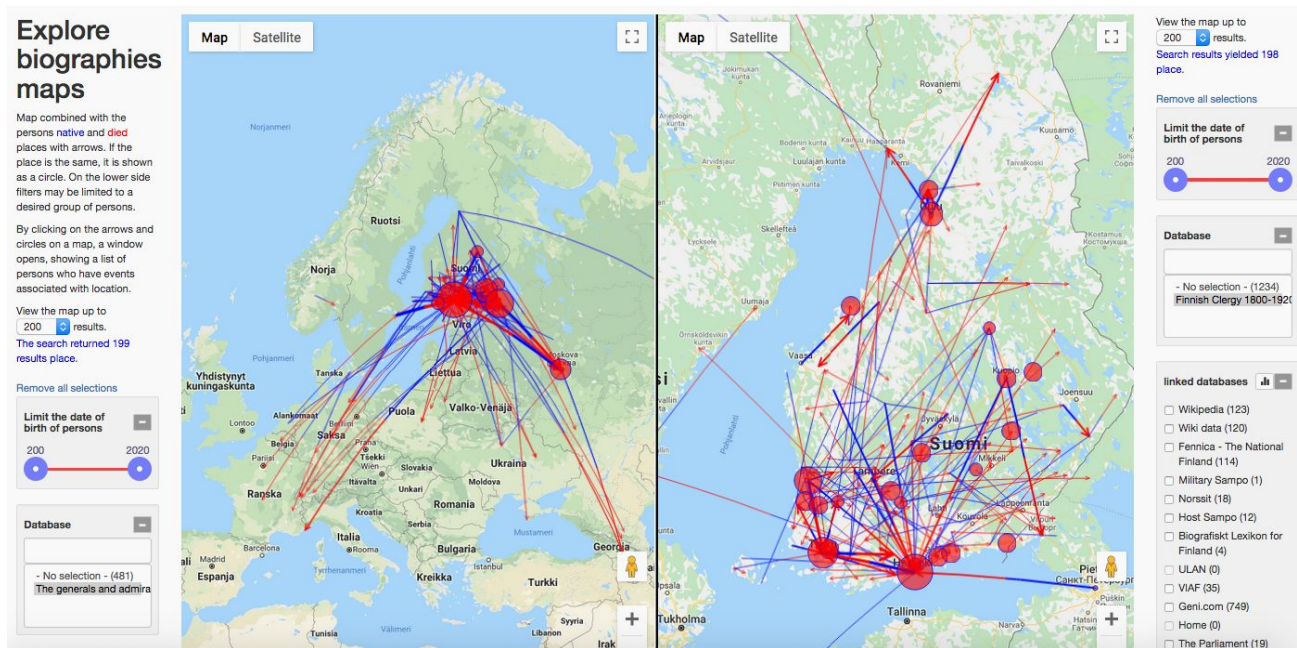
# BiographySampo

The National Biography of Finland ([www.biografiasampo.fi](http://www.biografiasampo.fi)) has several different views:

- Table-like result view for people
- Table-like result view for places
- Maps
- Statistics
- Networks
- Relation Search
- Language Analysis

# Maps

## Comparison of 19th century clergy and generals:



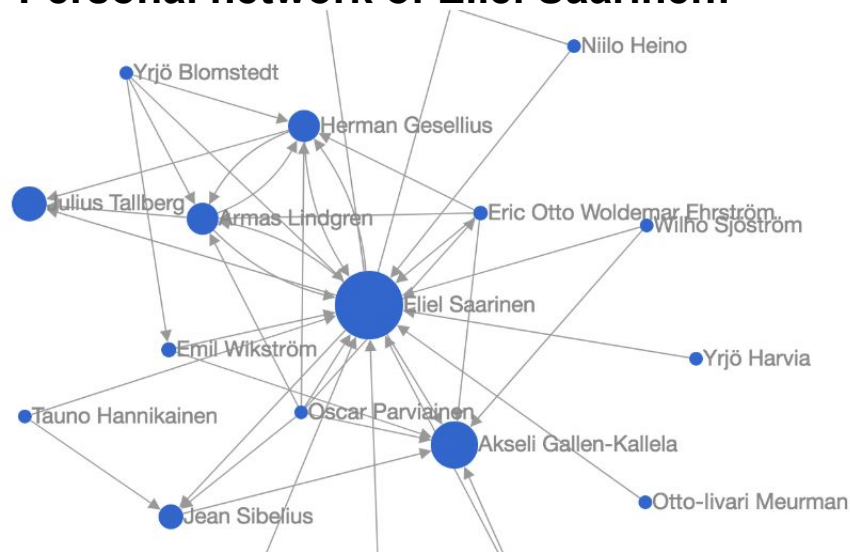
# Networks

A link is formed when person A is mentioned in person B's biographical texts

Networks of Finnish people in ULAN:



Personal network of Eiel Saarinen:



# Summary

# SPARQL-Faceter

- For searching an individual person
- For defining a group of people with a certain criteria

## Visual output:

- a Table or Grid formatted of people
- Various kinds of visualizations
  - Maps, Charts, Networks etc.
  - Using an external library, like Google Charts, Cytoscape etc.

# Questions?



# Thank You