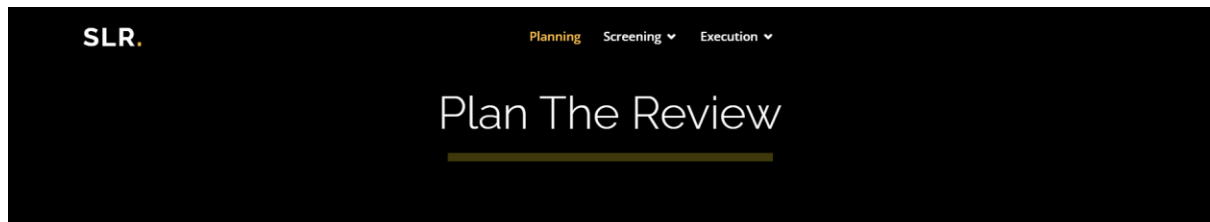


How-To-Use Systematic Literature Review (SLR)

Planning Page

1. Go to this link: <http://slr.aminhakim.tech>
2. Press on 'Download' button to download How-To Guide



HOW-TO GUIDE

Please download the guide on how to use SLR:



SELECTION CRITERIA

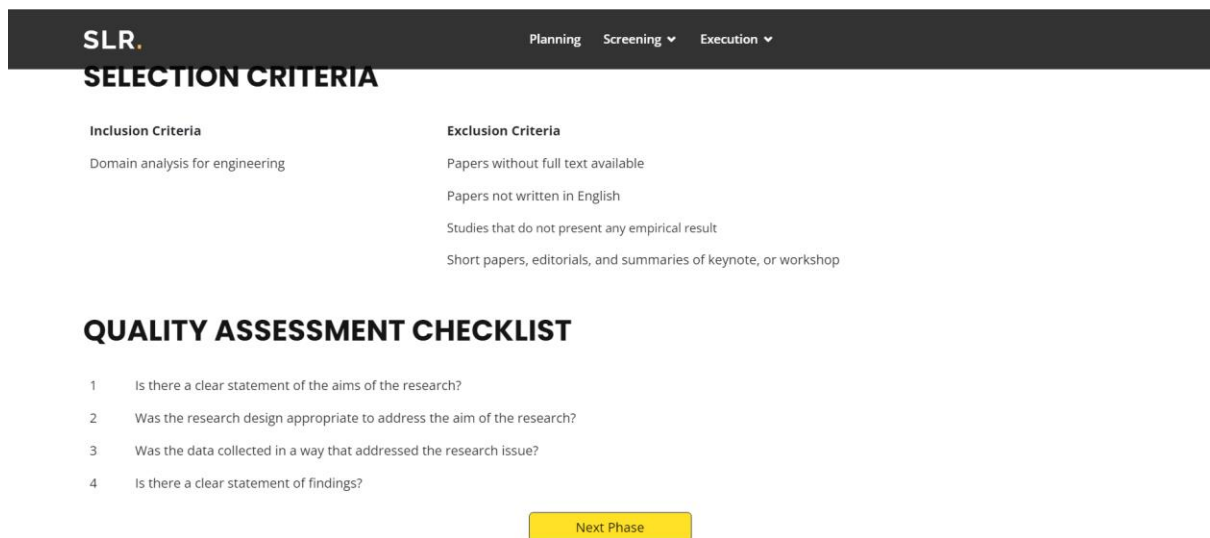
Inclusion Criteria

Domain analysis for engineering

Exclusion Criteria

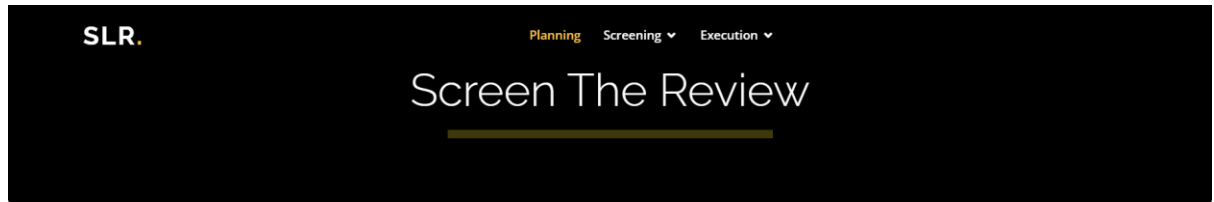
Papers without full text available

3. Click on 'Next Phase' button to proceed to the 'Screening' page



Screening Page

1. User will be redirected to 'Screening' page from previous steps or can use this link:
2. Choose either Supervised Machine Learning or Unsupervised Clustering



Choose your preferred approach for Filter Studies process:

Supervised Machine Learning

Classify records as "relevant" or "not relevant" by training a machine learning model on a manually classified set of records

Choose your preferred approach for Retrieve Studies process:

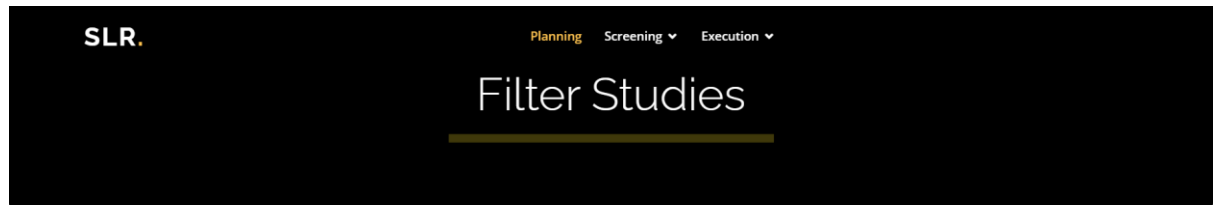
Unsupervised Clustering

Classify records as "relevant" or "not relevant" using a manually classified set of relevant records as seed values

IF choose 'Filter – Supervised Machine Learning

Filter Page – Supervised Machine Clustering

1. User will be redirected to 'Filter' page from previous steps or can use this link:



APPROACH: SUPERVISED MACHINE LEARNING

Machine Learning algorithms to assesses the probability of documents being relevant to a topic of interest

Machine Learning requires a training dataset (at least 25-100 documents; more training data will produce better results), annotated as relevant or not to the topic of interest.

IMPORT INPUT FILES

Upload Data (Standard CSV format) :

Choose file

Browse

2. Upload one file for 'Input File' and one file for 'Training File'
3. Click on 'Upload' button

SLR. APPROACH: SUPERVISED MACHINE LEARNING Planning Screening ▼ Execution ▼

Machine Learning algorithms to assesses the probability of documents being relevant to a topic of interest

Machine Learning requires a training dataset (at least 25-100 documents; more training data will produce better results), annotated as relevant or not to the topic of interest.

IMPORT INPUT FILES

Upload Data (Standard CSV format) :

Choose file

Browse

IMPORT TRAINING FILES

Upload Data (Standard CSV format) :

Choose file

Browse

Upload

ALGORITHM SETTINGS

- Requirement for 'Input File'

| | A | B | C | D | E |
|----|-------------|--------------|------|-------------|-------|
| 1 | Title | Abstract | Year | Authors | Label |
| 2 | A Concept | This is an c | 2006 | Anicet Yala | 1 |
| 3 | A Quantita | <p>Requir | 2007 | Alan Davis | 1 |
| 4 | A survey a | <p>A comp | 2007 | Huzefa Ka | 0 |
| 5 | An analysis | OBJECTIVE | 2005 | Carolyn M | 0 |
| 6 | Challenges | Modeling i | 2014 | Michiel Re | 1 |
| 7 | Controver | This article | 2007 | M. N. Wicl | 0 |
| 8 | Data sets | OBJECTIVE | 2005 | Gernot A. | 1 |
| 9 | Developing | Open sour | 2015 | Joseph Fel | 1 |
| 10 | Effectiven | This paper | 2006 | By Alan Da | 1 |
| 11 | Evidence-E | Several stu | 2005 | By Magne | 1 |
| 12 | Experimen | There is a | 2005 | Martin H?s | 1 |

- Make sure the file format is .CSV
- Must has Abstract, Year, Authors, Label columns
- Make sure the titles of columns are correctly spelled
- Label column are filled as follows:
 - 1 – For relevant paper
 - 0 – For irrelevant paper

- Requirement for 'Training File'

| | A | B | C | D |
|----|-------------|--------------|------|-------------|
| 1 | Title | Abstract | Year | Authors |
| 2 | A Concept | This is an c | 2006 | Anicet Yala |
| 3 | A Quantita | <p>Requir | 2007 | Alan Davis |
| 4 | A survey a | <p>A comp | 2007 | Huzefa Ka |
| 5 | An analysis | OBJECTIVE | 2005 | Carolyn M |
| 6 | Challenges | Modeling i | 2014 | Michiel Re |
| 7 | Controver | This article | 2007 | M. N. Wicl |
| 8 | Data sets | OBJECTIVE | 2005 | Gernot A. |
| 9 | Developing | Open sour | 2015 | Joseph Fel |
| 10 | Effectiven | This paper | 2006 | By Alan Da |
| 11 | Evidence-E | Several stu | 2005 | By Magne |
| 12 | Experimen | There is a | 2005 | Martin H?s |

- Make sure the file format is .CSV
- Must has Abstract, Year, Authors columns
- Make sure the titles of columns are correctly spelled

4. Select Supervised Machine Learning algorithm to use
5. Click on 'Run Machine Learning' button

SLR

Standard CSV format

PlanningScreeningExecution

Choose file

Browse

IMPORT TRAINING FILES

Upload Data (Standard CSV format):

Choose file

Browse

Upload

ALGORITHM SETTINGS

Topic extraction algorithms do not require any training data (i.e., no document annotation is needed), and are designed for rapid assessments to discover the major topics in a document collection.

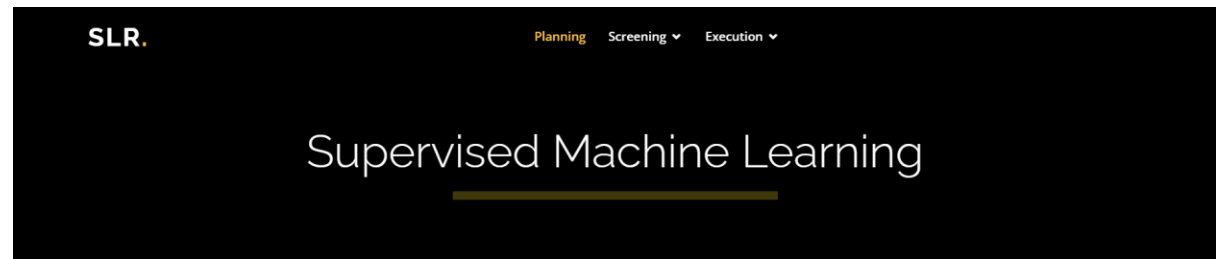
Select supervised technique:

Random Forest

Run Machine Learning

Filter Output Page

1. User will be redirected to 'Filter Output' page
2. This page can only be accessed through 'Run Machine Learning' button from previous page
3. SLR will display the result of training the 'Training File' from previous page



RESULTS

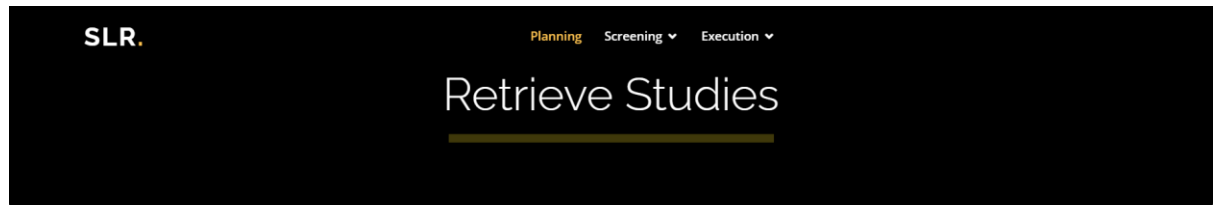
| No. | Year | Title | Authors | Predict |
|-----|------|---|---|---------|
| 0 | 2006 | A Conceptual Model of ICT-Supported Unified Process of International Outsourcing of Software Production | Anicet Yalaho | 1 |
| 1 | 2007 | A Quantitative Assessment of Requirements Engineering Publications ? 1963? 2006 | Alan Davis , Ann Hickey , Oscar Dieste , Natalia Juristo and Ana Moreno | 1 |
| 2 | 2007 | A survey and taxonomy of approaches for mining software repositories in the context of software evolution | Huzefa Kagdi, Michael L. Collard, Jonathan I. Maletic | 1 |
| 3 | 2005 | An analysis of data sets used to train and validate cost prediction systems | Carolyn Mair, Martin Shepperd, Magne J?rgensen | 1 |

4. Click on 'Download' button to download the 'Training file' that has been trained with Machine Learning (as shown in the table)
5. This trained 'Training file' will be used for the next phase
6. Click on 'Next Phase' button to proceed to the 'Assess' page

IF choose 'Retrieve – Unsupervised Clustering'

Retrieve Page – Unsupervised Clustering

1. User will be redirected to 'Retrieve page from previous steps or can use this link:



IMPORT STUDIES

Upload Data (Standard XLSX format) :

Choose file Browse Upload

ALGORITHM SETTINGS

Topic extraction algorithms do not require any training data (i.e., no document annotation is needed), and are designed for rapid assessments to discover the major topics in a document collection.

Select clustering technique:

2. Upload one file for 'Import Studies'
3. Click on 'Upload' button
 - Requirement for 'Import Studies' file

| | A | B | C | D | E | F | G | H | I | J | K | L | M |
|----|-------------|--------------|-----------|-------------|-----------|--------------|-----------|-----------|---------------|------------|------------|------------|------------|
| 1 | Publication | Authors | Book Auth | Book Edit | Book Grou | Author Ful | Book Auth | Group Aut | Article Title | Source Tit | Book Serie | Book Serie | Language |
| 2 | C | Zaidi, MA | | Gervasi, O | | Zaidi, Moa | | | Conceptua | COMPUTA | Lecture Nc | | English |
| 3 | J | Khakpour, | | | | Khakpour, | | | Converger | TECHNOL | | | English |
| 4 | J | Kumeno, F | | | | Kumeno, F | | | Software e | INTELLIGE | | | English |
| 5 | C | Sharma, P | | Gupta, A; I | | Sharma, P | | | Systematic | 2017 INTE | | | English |
| 6 | J | Robledo, S | | | | Robledo, S | | | Hasta la vi | JOURNAL | | | English |
| 7 | J | Nogales, F | | | | Nogales, F | | | Hand gesti | INTERNAT | | | English |
| 8 | J | Kang, ZQ; | | | | Kang, Ziqi | | | Machine le | COMPUTE | | | English |
| 9 | J | Henrique, | | | | Henrique, | | | Literature | EXPERT S | | | English |
| 10 | J | van Klomp | | | | van Klomp | | | Crop yield | COMPUTE | | | English |
| 11 | J | Saputri, TF | | | | Saputri, TF | | | The Applic | IEEE ACC | | | English |
| 12 | J | Azeem, MI | | | | Azeem, MI | | | Machine le | INFORMA | | | English |
| 13 | J | Korkmaz, I | | | | Korkmaz, I | | | A review o | EDUCATIC | | | English |
| 14 | J | Bertolini, M | | | | Bertolini, M | | | Machine L | EXPERT S | | | English |
| 15 | J | Alenezi, H | | | | Alenezi, H | | | Utilizing cr | EDUCATIC | | | English |
| 16 | C | Mekkaoui, | | Benadada | | Mekkaoui, | | | A Systema | GOL'20: 20 | | | English |
| 17 | J | Tsunoda, I | | | | Tsunoda, I | | | Machine le | REVISTA | | | Portuguesi |
| 18 | C | Perez-Ver | | JuarezRan | | Manuel Pe | | | A Systema | 2020 8TH | | | English |
| 19 | J | Wen, JF; I | | | | Wen, Jian | | | Systematic | INFORMA | | | English |

- Make sure the file is downloaded from Scopus and choose Export to Excel
- When exporting, choose 'Record Content' as Full Record
- Make sure the format is .XLS
- Do not change anything on the file downloaded
- Rename the file if needed

- SLR will display the result of cleaning files from paper that are missing either Year, Title or Abstract\

SLR.

PlanningScreening ▼Execution ▼

IMPORT STUDIES

Upload Data (Standard XLSX format) :

BrowseUpload

The dataset uploaded is cleaned by removing records with missing fields and duplication. The summary of of process is shown for reference.

| Description | Total Papers |
|--|--------------|
| Initial dataset | 100 |
| Remove missing year | 8 |
| Remove missing title | 0 |
| Remove missing abstract | 0 |
| The final dataset after removing of 8 papers | 92 |

- Select Unsupervised Clustering algorithm to use
- Click on 'Run Topic Extraction' button

SLR.

PlanningScreening ▼Execution ▼

IMPORT STUDIES

Upload Data (Standard XLSX format) :

BrowseUpload

ALGORITHM SETTINGS

Topic extraction algorithms do not require any training data (i.e., no document annotation is needed), and are designed for rapid assessments to discover the major topics in a document collection.

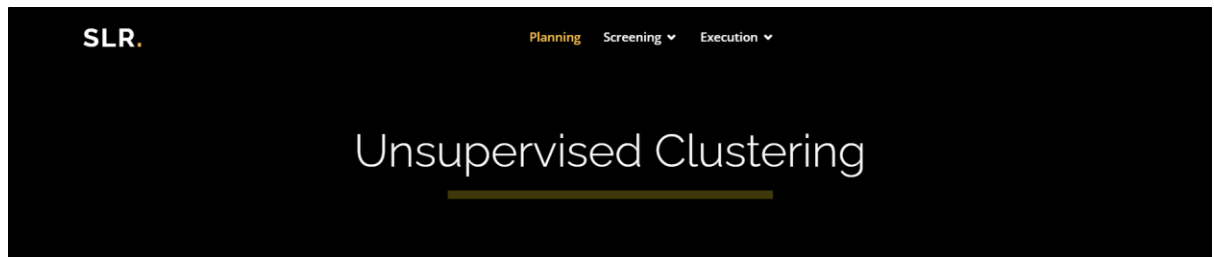
Select clustering technique:

Number of Topics:

Run Topic Extraction

Retrieve Output Page

1. User will be redirected to 'Retrieve Output' page
2. This page can only be accessed through 'Run Unsupervised Clustering' button from previous page
3. SLR will display the result of training the 'Import Studies' file from previous page



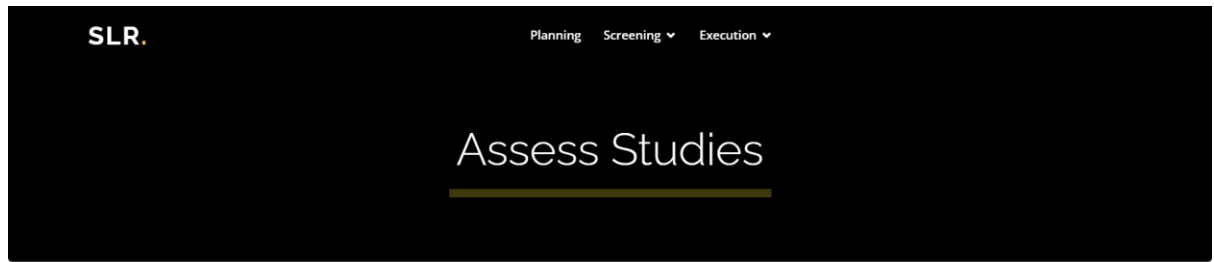
RESULTS

| No. | Year | Title | Authors | Topics |
|-----|------|--|---------------------------------|--------|
| 0 | 2021 | Conceptual Modeling Interacts with Machine Learning - A Systematic Literature Review | Zaidi, MA | 3 |
| 1 | 2021 | Convergence of Gamification and Machine Learning: A Systematic Literature Review | Khakpour, A; Colomo-Palacios, R | 2 |
| 2 | 2019 | Software engineering challenges for machine learning applications: A literature review | Kumeno, F | 0 |
| 3 | 2017 | Systematic Literature Review on Software Effort Estimation Using Machine | Sharma, P; Singh, J | 3 |

4. Click on 'Download' button to download the 'Import Studies' file that has been trained with Unsupervised Clustering (as shown in the table)
5. This trained 'Import Studies' file will be used for the next phase
6. Click on 'Next Phase' button to proceed to the 'Assess' page

Assess Page

1. User will be redirected to 'Assess' page from previous steps or can use this link:



QUALITY ASSESSMENT OF STUDIES

Upload Data (Standard CSV or XLSX format) :

Choose file

2. Upload one file for 'Quality Assessment'
3. Click on 'Upload' button

IF choose 'Filter' – Supervised Machine Learning

- Make sure the format is .CSV

IF choose 'Retrieve – Unsupervised Clustering

- Make sure the format is .XLSX

Requirement for 'Quality Assessment' file

| | A | B | C | D | E | F | G |
|----|-------|-------------|--------------|------|-------------|---------|----------|
| 1 | Index | Title | Abstract | Year | Authors | Predict | Relevant |
| 2 | 0 | A Concept | This is an c | 2006 | Anicet Yala | 1 | 1 |
| 3 | 1 | A Quantita | <p>Requir | 2007 | Alan Davis | 1 | 1 |
| 4 | 2 | A survey a | <p>A comp | 2007 | Huzefa Kag | 1 | 1 |
| 5 | 3 | An analysis | OBJECTIVE | 2005 | Carolyn M | 1 | 0 |
| 6 | 4 | Challenges | Modeling i | 2014 | Michiel Re | 1 | 1 |
| 7 | 5 | Controver | This article | 2007 | M. N. Wicl | 1 | 1 |
| 8 | 6 | Data sets | OBJECTIVE | 2005 | Gernot A. | 1 | 0 |
| 9 | 7 | Developing | Open sour | 2015 | Joseph Fel | 1 | 1 |
| 10 | 8 | Effectiven | This paper | 2006 | By Alan Da | 1 | 0 |
| 11 | 9 | Evidence-E | Several stu | 2005 | By Magne | 1 | 0 |
| 12 | 10 | Experimen | There is a | 2005 | Martin H?s | 1 | 0 |

- DO NOT delete any column
- Add 'Relevant' column and fill the column as follows
 - 1 – For Relevant paper
 - 0 – For Irrelevant paper
- Make sure the 'Relevant' column is correctly spelled

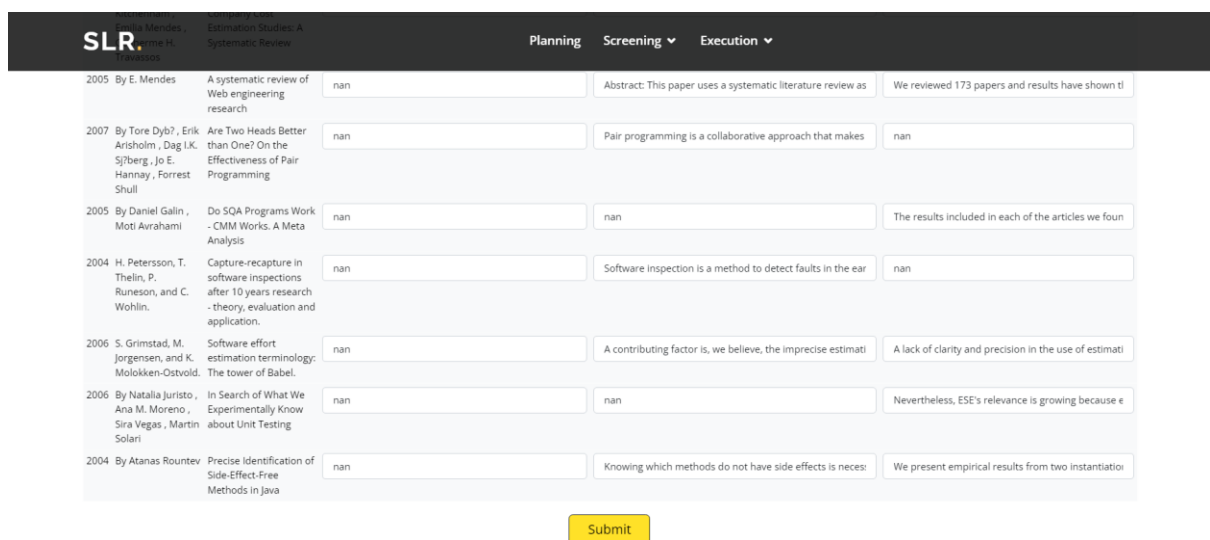
Extract Data Page

1. User will be redirected to this page from the previous page.
2. Only paper that are labelled as 'Relevant' or 1 will be shown
3. Choose Objective, Method, and Result for each paper.



| Year | Author | Title | Objective | Method | Result |
|------|---|---|--|--|---|
| 2006 | Anicet Yalaho | A Conceptual Model of ICT-Supported Unified Process of International Outsourcing of Software Production | This study proposes the information communication t | At the theoretical level, the model can be used as a basis f | To address this research question, the results of ar |
| 2007 | Alan Davis , Ann Hickey , Oscar Dieste , Natalia Juristo and Ana Moreno | A Quantitative Assessment of Requirements Engineering Publications ? 1963? 2006 | It is important to recognize the plethora of results acc | nan | It is important to recognize the plethora of results. |
| 2007 | Huzefa Kagdi, Michael L. Collard, Jonathan I. Maletic | A survey and taxonomy of approaches for mining software repositories in the context of software evolution | A taxonomy is derived from the analysis of this literati | <p>A comprehensive literature survey on approaches for | nan |

4. Click on 'Submit' button to proceed to the next phase.



Synthesis Page

1. User will be redirected to this page from the previous page
2. SLR will show the Word Cloud for Objective, Method, and Result



RESULT

Word Cloud - Objective



3. SLR will show the Pie and Bar Chart for selected papers
4. User will be able to use 'Download' button to download all the diagrams displayed.

