
Software Engineering

Code Metric

GROUP - Club_Elite

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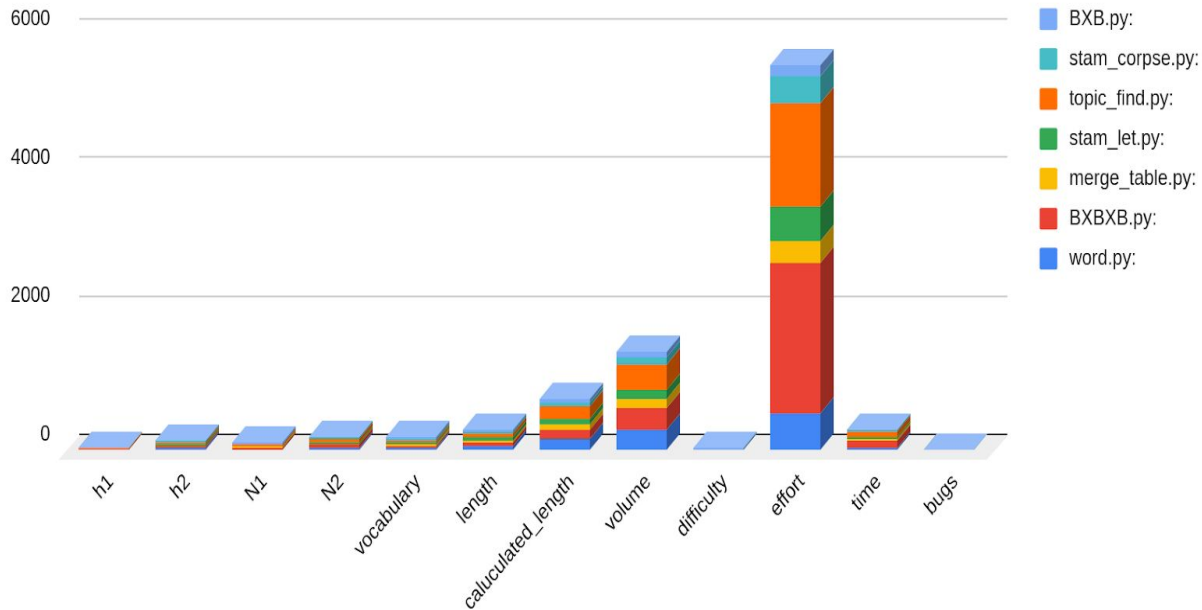
Instructor - Amit Kumar, Ashutosh Kumar

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- Some features of each component of the software:

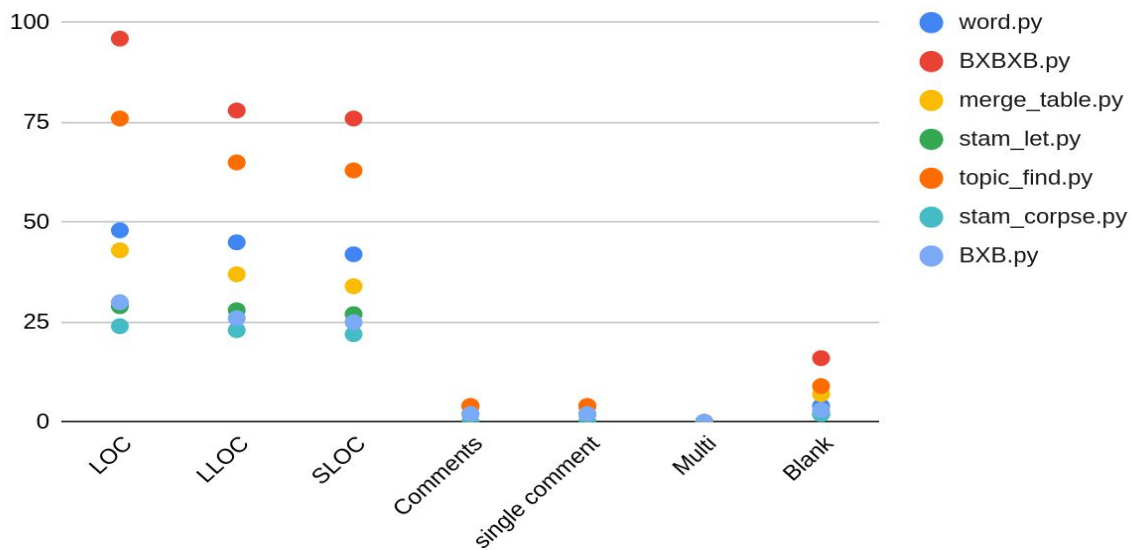
- Halstead Complexity Matrix

Halstead complexity metric

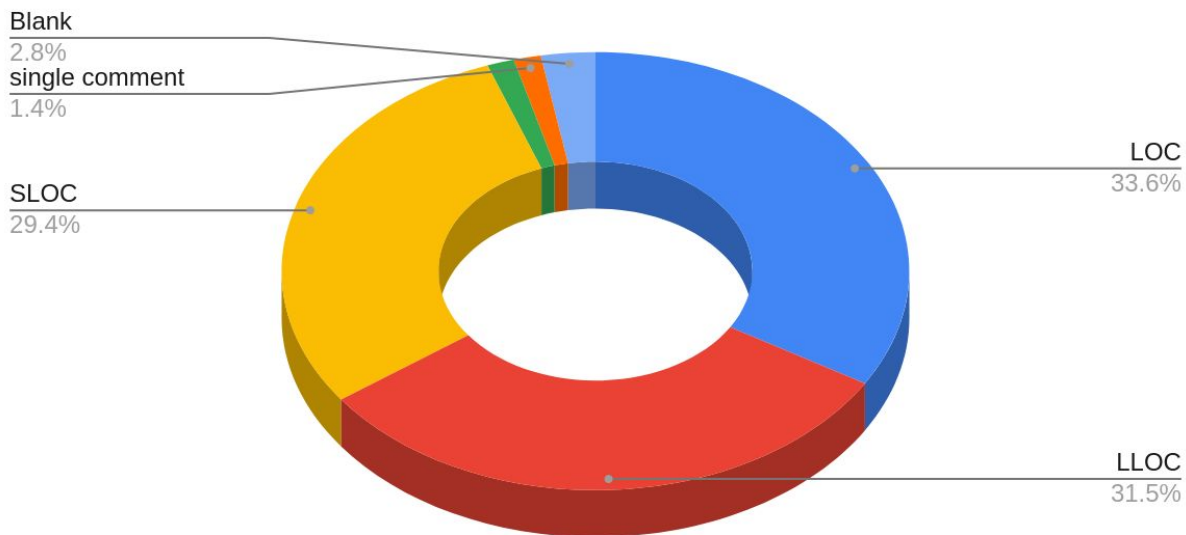


- Raw Analysis:

Raw Analysis



Raw Analysis

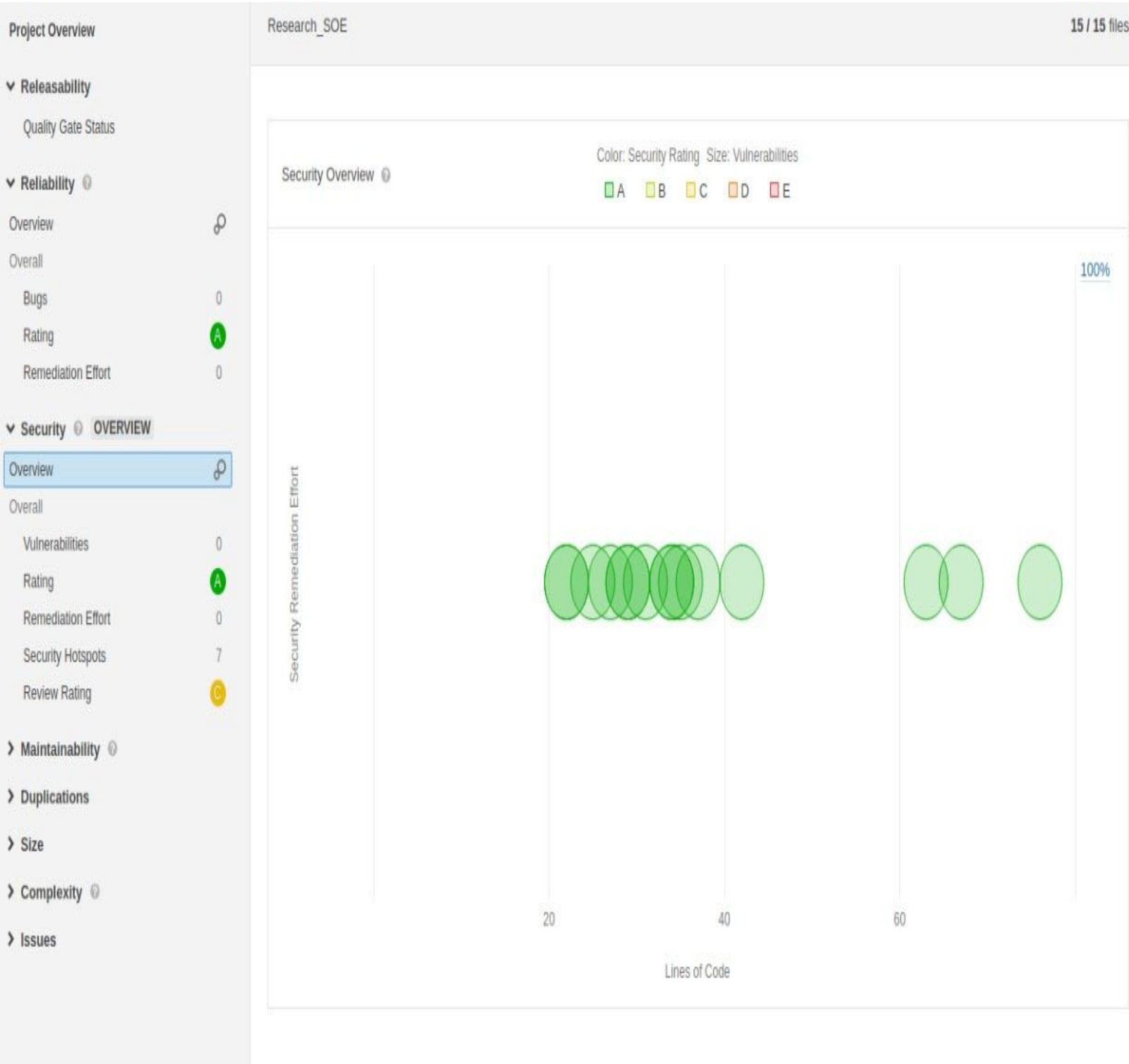


● Overview of different properties of the software:-

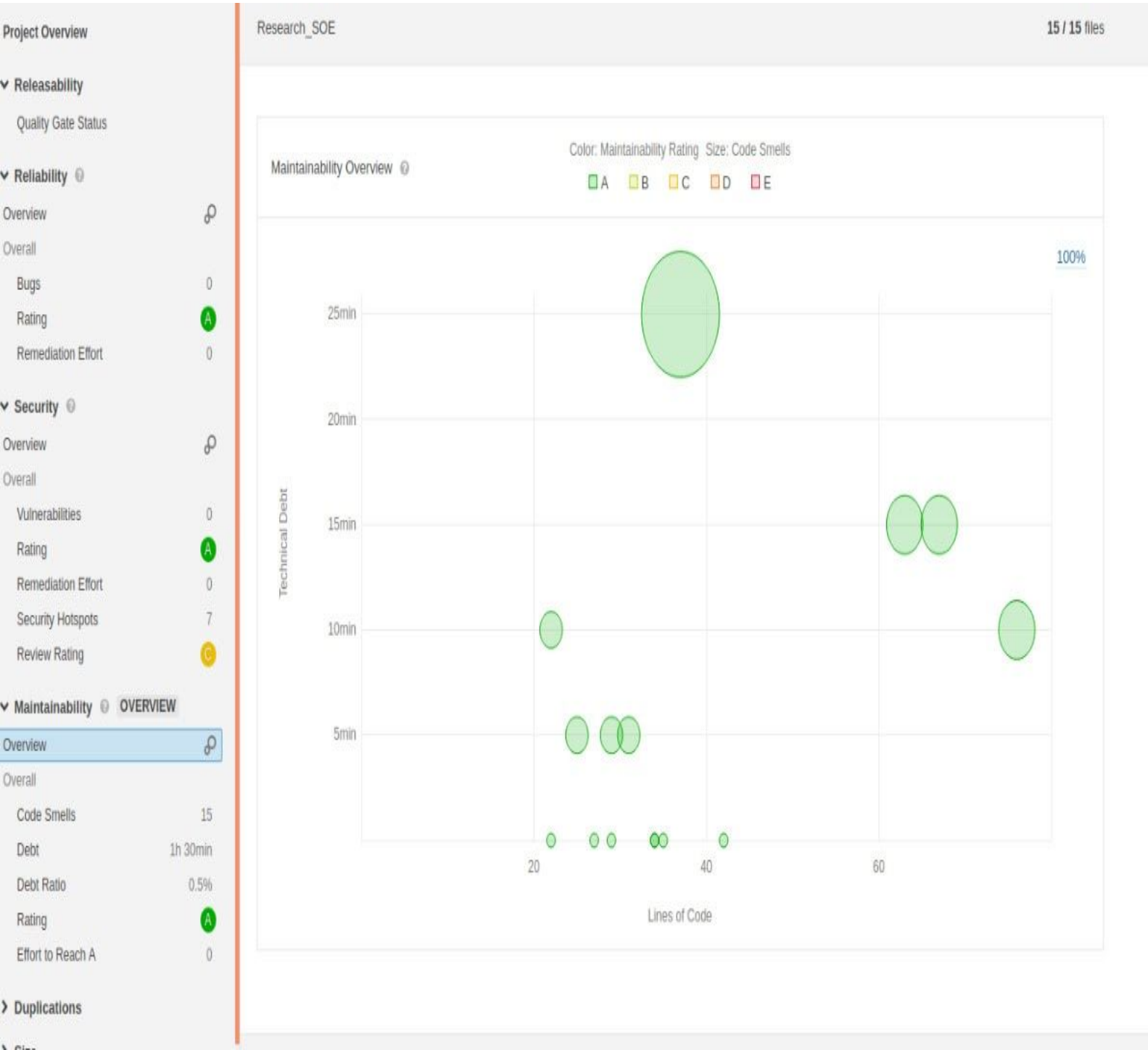
Module metrics		File type metrics	Project metrics
File type	FILES		
.gitignore (Git)	2		
JSON	2		
JSP	1		
Markdown	2		
Python	15		
Shell Script	7		
Text	61		
Total	90		
Average	12.86		

Module metrics		File type metrics	Project metrics
File type	LOC	NCLOC	
.gitignore (Gitignore)	4	4	
JSON	77	77	
JSP	4	4	
Markdown	22	22	
Python	622	573	
Shell Script	51	51	
Text	34,243		
Total	35,023	731	
Average	5,003.29	121.83	

• Security Rating of Software



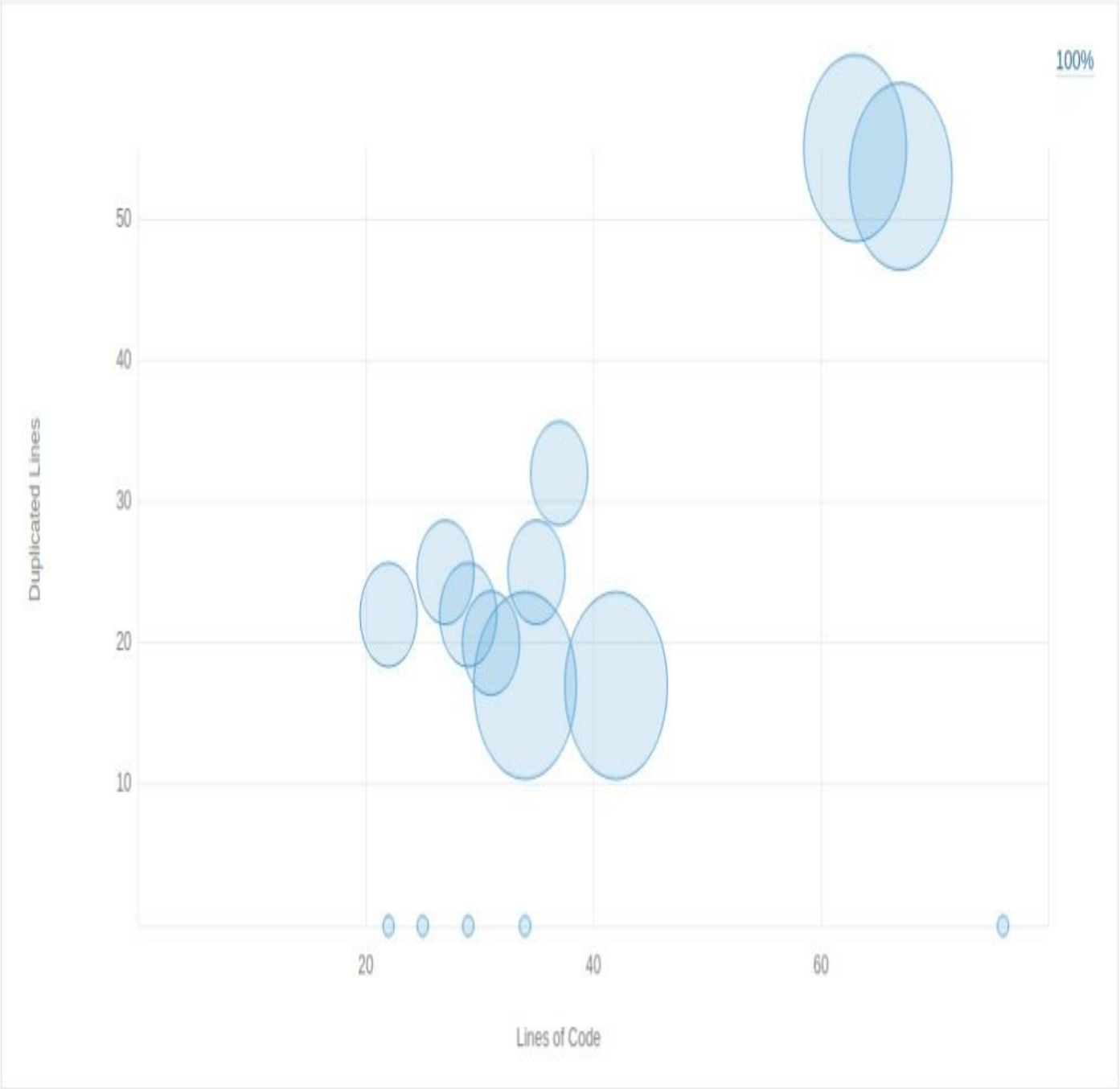
● Maintainability Of Software



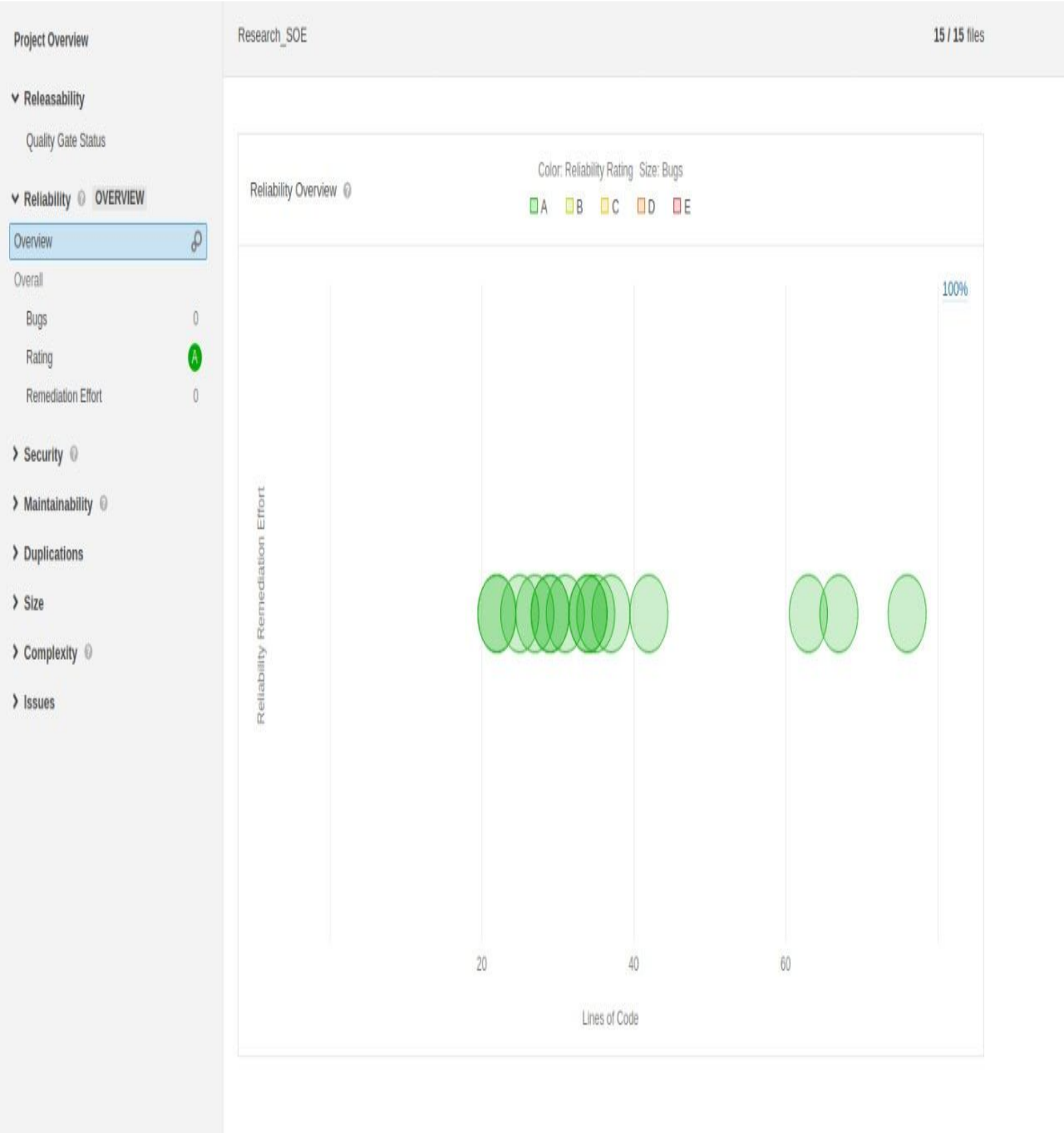
Duplications Overview

Size: Duplicated Blocks

100%



● Reliability Of Software



➤ Different versions of software :-

1. **Lines of Source code** - Indicates the exact number of source code lines that are present in your source file, including blank lines.

Lines of code (LOC)



● Technical Debt w.r.t time:-

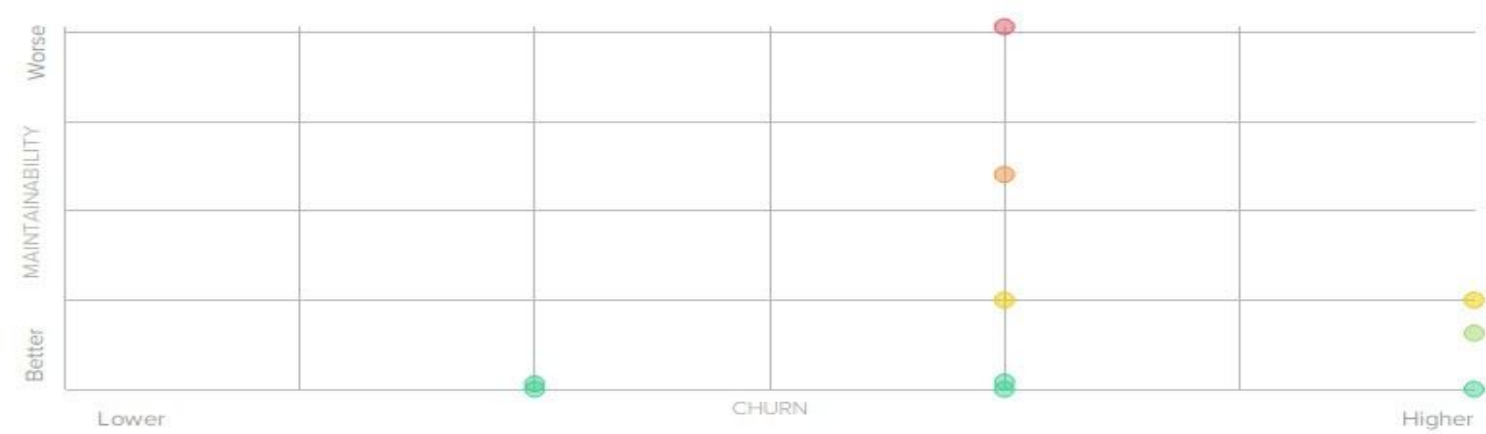
Technical Debt



- For the Final Version :-

Churn vs. maintainability

Maintainability issues cause bigger problems in files that are changed (churn) frequently.



- Properties of the Content:-

○ Complexity

Search this file...

	filename	sloc	comments	ratio_comment_to_code	mccabe	language
1	BXB.py	25	2	0.08	7	Python
2	BXBXB.py	76	4	0.05	28	Python
3	merge_table.py	34	2	0.06	8	Python
4	stam_corpse.py	22	0	0.0	6	Python
5	stam_let.py	27	0	0.0	6	Python
6	topic_find.py	63	4	0.06	19	Python
7	word.py	42	2	0.05	10	Python

● Cyclomatic Complexity:

Research_SOE / Sample Data

View as Tree ↑ ↓ to select files ← → to navigate 7 files

Cyclomatic Complexity 89

BXB.py	6
BXBXB.py	24
merge_table.py	8
stam_corpse.py	10
stam_let.py	11
topic_find.py	21
word.py	9

7 of 7 shown

- **Issues**

Research_SOE / Sample Data

View as

Tree

↑

↓

to select files

←

→

to navigate

7 files

Issues 5

BXB.py

1

BXBXB.py

2

merge_table.py

0

stam_corpse.py

0

stam_let.py

0

topic_find.py

2

word.py

0

7 of 7 shown

- **Cognitive Complexity:**

Research_SOE / Sample Data

View as Tree ↑ ↓ to select files ← → to navigate 7 files

Cognitive Complexity 176

BXB.py	14
BXBXB.py	70
merge_table.py	10
stam_corpse.py	15
stam_let.py	15
topic_find.py	31
word.py	21

7 of 7 shown

- **Complexity w.r.t each File:-**

```

harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ ls *.py
BXB.py BXBXB.py merge_table.py stam_corpse.py stam_let.py topic_find.py word.py
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ python3 -m mccabe BXB.py
Loop 9 3
Loop 24 5
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ python3 -m mccabe BXBXB.py
Loop 9 3
Loop 25 6
Loop 46 3
Loop 63 6
Loop 78 9
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ python3 -m mccabe merge_table.py
5:0: 'check' 3
Loop 23 2
Loop 28 2
Loop 35 2
Loop 39 3
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ python3 -m mccabe stam_corpse.py
Loop 7 7
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ python3 -m mccabe stam_let.py
Loop 11 7
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ python3 -m mccabe topic_find.py
8:0: 'Sort_Tuple' 1
Loop 21 4
If 29 2
Loop 45 9
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ python3 -m mccabe word.py
Loop 7 2
Loop 11 8
Loop 47 2

```

- **Grading from the trusted source radon :-**

○ Maintainability Index

```
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ radon mi -s -m *.py
BxB.py - A (70.97)
BxBXB.py - A (51.18)
merge_table.py - A (64.06)
stam_corpse.py - A (54.46)
stam_let.py - A (51.93)
topic_find.py - A (53.91)
word.py - A (58.07)
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$
```

- Churns with each file in consideration:-

CodeFactor

MASTER

Research_SOE

codefactor

29 issues

0 pull requests

22 files

1 active branch

Settings

GRADE	NAME	COMPLEXITY	CHURN	ISSUES
A	N-Gram\char.py		2	1
A	N-Gram\word.py		2	1
A	Sample Data\BKS.py		2	1
A	Sample Data\BKSXB.py		2	1
A	Sample Data\Final.sh		1	1
A	Sample Data\merge.sh		1	1
A	Sample Data\merge_table.py	3	3	-
A	Sample Data\metadata.sh		1	1
A	Sample Data\ngram_topic.sh		2	1
A	Sample Data\stan_corpse.py		2	-
A	Sample Data\stan_let.py		2	-
A	Sample Data\topic.sh		2	1
A	Sample Data\topic_find.py	1	2	1
A	Sample Data\word.py		3	-
A	Topic\check.py	1	1	-
A	Topic\ngram_topic.sh		4	1
A	Topic\stan_corpse.py		1	-
A	Topic\stan_let.py		2	1
A	Topic\stanming.py		3	1
A	Topic\topic.sh		5	1

- Function classes and method from radon:-
 - Cyclomatic Complexity.

```
Average complexity: A (2.0)
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$ radon cc *.py -a
merge_table.py
F 5:0 check - A
topic_find.py
F 8:0 Sort_Tuple - A

2 blocks (classes, functions, methods) analyzed.
Average complexity: A (2.0)
harsh@EclipseHunter:~/Desktop/Sem4/SOE/Research/Sample Data$
```

- Specification for topic finding code:-

Sample Data\topic_find.py

TIME TO FIX: 5 minutes

View on GitHub

Ignore File

Size	Structure	Complexity	Duplication
Lines of code: 76	Number of Methods: 1	Complexity: 1	Number of Clones: 7
Source lines of code: 63	sLoC / Method: ①	63.00	Complexity / Method: 1.00
Commented lines of code: 4		Churn: 1	Duplicated lines of code: 116