BAHIRDAR UNIVERSITY(BDU)

BAHIRDAR INSTITUTE OF TECHNOLOGY(BiT)

Faculty Of Computing

Department of Software Engineering

Software Metrics

individual Assignment

Name: YILKAL DERSEH

ID: 1101920

Section: B

0

1. Introduction

i. Document overview

Comparing Static code analysis of Education Management System, Electronic-Store system and University management system that are created from Embold and linked by Github. the analysis and rating of those projects are shown by four sub-ratings:

- Vulnerabilities
- anti-pattern
- Duplication,
- code issues

also comparison is done by using key performance indicators such as usability, analysability, robustness, conceptual Integrity, efficiency, functionality, maintainability, portability, reliability and security.

ii. Abbreviations and Glossary

A. Abbreviations

Abbreviation	Description
KPI	Key process Indicator
ELOC	Executable line of code
HTML	Hyper text markup language
PHP	Hyper text preprocessor
CSS	Cascading style sheet
JSON	JavaScript Object Notation
SQL	Structured query language
URL	Uniform Resource Locator
YAML	Yet another markup languge

B. Glossary

Glossary	Definition
vulnerability	An error or a weakness present in the software code. Those are product-related threats that can hamper your data and gain access to your products and data
Code Issue	When a system is expected to behave in a certain way and it fails to meet the result, the issue occurs.
anti-pattern	An anti-pattern can easily result in unmaintainable and error-prone solutions.

Duplication	Code Duplication is a software metric that indicates the amount of source code that occurs more than once in a program
Education Management System	is a software that is designed specifically to create, distribute, and manage the delivery of educational content
Electronic-store	A retail establishment used for the selling or repairing of consumer electronic products such as home and car stereos, televisions, telephones, and personal computers
University Management System	is a web-based solution which covers all aspects of colleges, universities and schools. It is developed for conducting, monitoring & analyzing complex activities of the University and its affiliated colleges like Centralized Admission, Centralized Examination, and much more
Project1	Education Management System
Project2	Electronic-store
Project3	University Management System

iii.   Project Descriptions

Project1

> Programming/scripting languages used
- CSS
- JavaScript
- JSON
- PHP
- SQL
> Number of ELOC/NELO
- 86.6K ELOC
> GitHub URL
https://github.com/Yilkal1101920/Education-Management-system

Project2

- ➢ Programming/scripting languages used
  - CSS
  - HTML
  - JavaScript
  - JSON
  - PHP
  - TypeScript
  - YAML
- ➢ Number of ELOC/NELO
  - 501.5K ELOC
- ➢ GitHub URL
  https://github.com/Yilkal1101920/electronic-store

Project3

- ➢ Programming/scripting languages used
  - CSS
  - Java
  - SQL
- ➢ Number of ELOC/NELO
  - 14.6K ELOC
- ➢ GitHub URL
  - https://github.com/Yilkal1101920/University-Management-System

2. Overview of Static Code Analysis Results

i. Overall rating

Project1
- -0.12

Project2
- -0.68

Project3
- 2.02

ii. Analysis Results

A. VULNERABILITIES

Project1

- No vulnerabilities found.
- It looks good

Project2
- No vulnerabilities found!

- It looks good

Project3

Issue	Criticality	KPIs	Language
Resource Leak	critical	- Efficiency - Security	Java
Avoid Throwing Generic Exception	High	- Analysability - Security	Java
Do Not Call System Exit	High	Security	Java
Error Message Containing Sensitive Data	High	Security	Java
Unencrypted Server Socket	High	Security	Java
Avoid Catching Generic Exception	Medium	Analysability	Java
Missing Default Case In Switch	Medium	Maintainability	Java

B. CODE ISSUES

Project1

Issue	Criticality	KPIs	Language
ExitExpression	High	Robustness	PHP
font-family-no-duplicate-names	High	- Functionality - Maintainability	CSS
no-unreachable	High	Efficiency	JavaScript
property-no-unknown	High	Functionality	CSS
block-no-empty	Medium	Functionality	CSS
callback-return	Medium	Functionality	JavaScript
declaration-block-no-duplicate-properties	Medium	- Functionality - Maintainability	CSS
default-case	Medium	Robustness	JavaScript
font-family-no-missing-generic-family-keyword	Medium	Functionality	CSS

4

length-zero-no-unit	Medium	Usability	CSS
no-compare-neg-zero	Medium	Analysability	JavaScript
no-cond-assign	Medium	Maintainability	JavaScript
no-console	Medium	Maintainability	JavaScript
no-constant-condition	Medium	Maintainability	JavaScript
no-duplicate-selectors	Medium	Maintainability	CSS
no-empty-first-line	Medium	Usability	CSS
no-eval	Medium	Security	JavaScript
no-extra-boolean-cast	Medium	Maintainability	JavaScript
no-extra-semicolons	Medium	Usability	CSS
no-fallthrough	Medium	Maintainability	JavaScript
no-labels	Medium	Maintainability	JavaScript
no-loop-func	Medium	Maintainability	JavaScript
no-mixed-spaces-and-tabs	Medium	Maintainability	JavaScript
no-self-assign	Medium	Maintainability	JavaScript
no-shadow	Medium	Maintainability	JavaScript
no-shadow-restricted-names	Medium	Maintainability	JavaScript
no-undef	Medium	Maintainability	JavaScript
no-func-assign	Medium	Maintainability	JavaScript

Project2

Issue	Criticality	KPIs	Language
font-family-no-duplicate-names	High	Functionality Maintainability	CSS
function-calc-no-invalid	High	Functionality	CSS
id-unique	High	Functionality Maintainability Robustness Usability	HTML
no-control-regex	High	Maintainability	JavaScript
no-dupe-keys	High	Maintainability	JavaScript
no-global-assign	High	Robustness	JavaScript

Issue	Criticality	KPIs	Language
no-unreachable	High	Efficiency	JavaScript
property-no-unknown	High	Functionality	CSS
block-no-empty	Medium	Functionality	CSS
callback-return	Medium	Functionality	JavaScript
declaration-block-no-duplicate-properties	Medium	Functionality Maintainability	CSS
declaration-block-no-redundant-longhand-properties	Medium	Maintainability Usability	CSS
declaration-block-no-shorthand-property-overrides	Medium	Usability	CSS
default-case	Medium	Robustness	CSS
font-family-no-missing-generic-family-keyword	Medium	Functionality	CSS
getter-return	Medium	Maintainability	JavaScript
length-zero-no-unit	Medium	Usability	CSS
no-cond-assign	Medium	Maintainability	JavaScript
no-console	Medium	Maintainability	JavaScript
no-constant-condition	Medium	Maintainability	JavaScript
no-duplicate-selectors	Medium	Maintainability	CSS
no-eval	Medium	Security	JavaScript
no-extra-boolean-cast	Medium	Maintainability	JavaScript
no-fallthrough	Medium	Maintainability	JavaScript
no-func-assign	Medium	Maintainability	JavaScript
no-labels	Medium	Maintainability	JavaScript
no-loop-func	Medium	Maintainability	JavaScript
no-mixed-spaces-and-tabs	Medium	Maintainability	JavaScript

Project3

Issue	Criticality	KPIs	Language
CognitiveComplexity	High	Maintainability	Java

Mutable Object Should Not Reference Public	High	Efficiency	Java
Public Static Field Should Be Final	High	Security	Java
Static Final Array Should Be Private	High	Security	Java
Unencrypted Socket	High	Security	Java
Use Of Syserr	High	Analysability	Java
Use Of Sysout	High	Analysability	Java
ArrayIsStoredDirectly	Medium	Functionality	Java
Avoid Catching NPE	Medium	Robustness	Java
AvoidDeeplyNestedIfStmts	Medium	Usability	Java
AvoidLiteralsInIfCondition	Medium	Usability	Java
AvoidReassigningLoopVariables	Medium	Maintainability	Java
AvoidUncheckedExceptionsInSignatures	Medium	Robustness	Java
CheckResultSet	Medium	Robustness	Java
CloneMethodMustImplementCloneable	Medium	Usability	Java
Clone Without Super	Medium	Maintainability	Java
CollapsibleIfStatements	Medium	Efficiency	Java
ForLoopCanBeForeach	Medium	Maintainability	Java
ImmutableField	Medium	Usability	Java
LiteralsFirstInComparisons	Medium	Robustness	Java
LooseCoupling	Medium	Maintainability	Java
NcssCount	Medium	Maintainability	Java
NoPackage	Medium	Usability	Java
PrematureDeclaration	Medium	Functionality	Java
ReplaceHashtableWithMap	Medium	Maintainability	Java
ReplaceVectorWithList	Medium	Maintainability	Java
Return Empty Array Or Collection Instead Of Null	Medium	Robustness	Java
SimpleDateFormatNeedsLocale	Medium	Portability	Java
SimplifyBooleanExpressions	Medium	Usability	Java
SimplifyBooleanReturns	Medium	Usability	Java
SingularField	Medium	Usability	Java
UnnecessaryCaseChange	Medium	Efficiency	Java
UnnecessaryModifier	Medium	Maintainability	Java
UseCollectionIsEmpty	Medium	Efficiency	Java
UseDiamondOperator	Medium	Maintainability	Java
UseLocaleWithCaseConversions	Medium	Portability	Java
UseObjectForClearerAPI	Medium	Usability	Java
UseUnderscoresInNumericLiterals	Medium	Maintainability	Java
Values In Definition	Medium	Efficiency	SQL
WhileLoopWithLiteralBoolean	Medium	Maintainability	Java
Implicit Column Usage	Low	Efficiency	SQL
PrimitiveWrapperInstantiation	Low	Maintainability	Java
Spaghetti Query Alert	Low	Efficiency	SQL
UnnecessaryConstructor	Low	Usability	Java

UnnecessaryLocalBeforeReturn	Low	Usability	Java
NULL Usage	Info	Efficiency	SQL
UnnecessaryImport	Info	Maintainability	Java

C. ANTI-PATTERNS

Project1

Name	Criticality	KPIs	Language
MonsterFile	High	Analysability Maintainability	JavaScript
NestedFunction	High	Analysability Maintainability Usability	JavaScript
DispersedVarDecl	Medium	Analysability Maintainability	JavaScript
MarkupInJS	Medium	Efficiency Maintainability	JavaScript

Project2

Issue	Criticality	KPIs	Language
MonsterFile	High	Analysability Maintainability	JavaScript
NestedFunction	High	Analysability Maintainability Usability	JavaScript
DispersedVarDecl	Medium	Analysability Maintainability	JavaScript
FatInterface	Medium	Usability	TypeScript
MarkupInJS	Medium	Efficiency Maintainability	JavaScript

Project3

Name	Criticality	KPIs	Language
GodClass	High	Analysability Maintainability	Java
DirectCyclicDependency	Medium	Maintainability	Java
FatInterface	Medium	Usability	Java

8

FeatureEnvy	Medium	Maintainability	Java
LocalButterfly	Medium	No KPAs	Java
MessageChain	Medium	Maintainability	Java
ShotgunSurgery	Medium	Maintainability	Java
TestHungry	Info	Maintainability	Java

D. DUPLICATION

Project1

occurrence	files	Issue type	language	Duplicated code	Duplicated map
2	2	**Clone Block**	JavaScript	**7253**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**15239**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**375**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**1414**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**113**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**89**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**1089**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**1397**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**613**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**285**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**187**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**69**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**38**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**243**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**267**	2 occurrences in 2 Files

8	4	**Clone Block**	CSS	**20**	**8** occurrences in **4** Files
4	2	**Clone Block**	JavaScript	**75**	**4** occurrences in **2** Files
4	2	**Clone Block**	JavaScript	**48**	**4** occurrences in **2** Files
4	2	**Clone Block**	JavaScript	**49**	**4** occurrences in **2** Files
2	2	**Clone Block**	JavaScript	**161**	2 occurrences in **2** Files
2	2	**Clone Block**	JavaScript	**75**	2 occurrences in **2** Files
2	2	**Clone Block**	JavaScript	1578	2 occurrences in **2** Files
2	2	**Clone Block**	JavaScript	**11**	2 occurrences in **2** Files
8	2	**Clone Block**	JavaScript	**18**	8 occurrences in **2** Files
4	2	**Clone Block**	JavaScript	**31**	4 occurrences in **2** Files
4	2	**Clone Block**	JavaScript	**41**	4 occurrences in **2** Files
6	2	**Clone Block**	JavaScript	**21**	6 occurrences in **2** Files
4	2	**Clone Block**	JavaScript	**29**	4 occurrences in **2** Files
4	2	**Clone Block**	JavaScript	**39**	4 occurrences in **2** Files
2	2	**Clone Block**	JavaScript	**62**	2 occurrences in **2** Files
2	1	**Clone Block**	JavaScript	**57**	2 occurrences in 1 Files
6	2	**Clone Block**	JavaScript	**21**	6 occurrences in 2 Files
4	2	**Clone Block**	JavaScript	**25**	4 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**7**	2 occurrences in 2 Files
4	2	**Clone Block**	JavaScript	**24**	4 occurrences in 2 Files
4	2	**Clone Block**	JavaScript	**28**	4 occurrences in 2 Files
4	2	**Clone Block**	JavaScript	**20**	4 occurrences in 2 Files
8	2	**Clone Block**	JavaScript	**13**	8 occurrences in 2 Files
4	2	**Clone Block**	JavaScript	**27**	4 occurrences in 2 Files

4	4	**Clone Block**	JavaScript	**13**	4 occurrences in 4 Files
4	2	**Clone Block**	CSS	**23**	4 occurrences in 2 Files
3	3	**Clone Block**	PHP	**52**	3 occurrences in 3 Files
3	3	**Clone Block**	CSS	**38**	3 occurrences in 3 Files
2	1	**Clone Block**	PHP	**16**	2 occurrences in 1 Files
2	2	**Clone Block**	PHP	**27**	2 occurrences in 2 Files

Project2

occurrence	files	Issue type	language	Duplicated code	Duplicated map
5	5	**Clone Block**	JavaScript	**6757**	**5** occurrences in **5** Files
3	3	**Clone Block**	JavaScript	**10541**	3 occurrences in 3 Files
2	2	**Clone Block**	JavaScript	**14674**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**10585**	2 occurrences in 2 Files
192	3	**Clone Block**	JavaScript	**59**	**192** occurrences in **3** Files
2	2	**Clone Block**	JavaScript	**8482**	2 occurrences in 2 Files
15	2	**Clone Block**	JavaScript	**149**	15 occurrences in 2 Files
3	3	**Clone Block**	JavaScript	**5416**	3 occurrences in 3 Files
2	2	**Clone Block**	JavaScript	**7867**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**2576**	2 occurrences in 2 Files

5	5	**Clone Block**	JavaScript	**909**	5 occurrences in 5 Files
2	2	**Clone Block**	JavaScript	**5953**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**4512**	2 occurrences in 2 Files
3	3	**Clone Block**	JavaScript	**2943**	3 occurrences in 3 Files
2	2	**Clone Block**	JavaScript	**8548**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**5231**	2 occurrences in 2 Files
3	3	**Clone Block**	JavaScript	**2589**	3 occurrences in 3 Files
2	2	**Clone Block**	JavaScript	**2910**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**7545**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**1466**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**7485**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**7487**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**2932**	2 occurrences in 2 Files
10	10	**Clone Block**	CSS	**284**	10 occurrences in 10 Files
3	3	**Clone Block**	JavaScript	**1592**	3 occurrences in 3 Files
8	6	**Clone Block**	JavaScript	**39**	8 occurrences in 6 Files

2	2	**Clone Block**	JavaScript	**2615**	2 occurrences in 2 Files
3	3	**Clone Block**	JavaScript	**662**	3 occurrences in 3 Files
2	2	**Clone Block**	JavaScript	**1533**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**1851**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**758**	2 occurrences in 2 Files
2	2	**Clone Block**	JavaScript	**738**	2 occurrences in 2 Files
4	4	**Clone Block**	JavaScript	**428**	4 occurrences in 4 Files
4	4	**Clone Block**	JavaScript	**940**	4 occurrences in 4 Files
4	4	**Clone Block**	JavaScript	**368**	4 occurrences in 4 Files
7	7	**Clone Block**	JavaScript	**178**	7 occurrences in 7 Files
3	3	**Clone Block**	JavaScript	**1424**	3 occurrences in 3 Files
2	2	**Clone Block**	JavaScript	**1517**	2 occurrences in 2 Files
5	3	**Clone Block**	JavaScript	**150**	5 occurrences in 3 Files
2	1	**Clone Block**	JSON	**16**	2 occurrences in 1 Files
15	1	**Clone Block**	PHP	**11**	15 occurrences in 1 Files
6	1	**Clone Block**	PHP	**10**	6 occurrences in 1 Files

occurrence	files	Issue type	language	Duplicated code	Duplicated map
2	2	**Clone Block**	HTML	**208**	2 occurrences in 2 Files

Project3

occurrence	files	Issue type	language	Duplicated code	Duplicated map
5	5	**Clone Block**	Java	247	5 occurrences in 5 Files
3	3	**Clone Block**	Java	256	3 occurrences in 3 Files
4	4	**Clone Block**	Java	118	4 occurrences in 4 Files
3	3	**Clone Block**	Java	171	3 occurrences in 3 Files
4	4	**Clone Block**	Java	157	4 occurrences in 4 Files
6	6	**Clone Block**	Java	110	6 occurrences in 6 Files
2	2	**Clone Block**	Java	300	2 occurrences in 2 Files
2	2	**Clone Block**	Java	433	2 occurrences in 2 Files
2	2	**Clone Block**	Java	371	2 occurrences in 2 Files
6	6	**Clone Block**	Java	93	6 occurrences in 6 Files
2	2	**Clone Block**	Java	201	2 occurrences in 2 Files
3	3	**Clone Block**	Java	225	3 occurrences in 3 Files
5	5	**Clone Block**	Java	62	5 occurrences in 5 Files

4	4	**Clone Block**	Java	71	4 occurrences in 4 Files
3	3	**Clone Block**	Java	202	3 occurrences in 3 Files
2	2	**Clone Block**	Java	169	2 occurrences in 2 Files
3	3	**Clone Block**	Java	96	3 occurrences in 3 Files
2	2	**Clone Block**	Java	40	2 occurrences in 2 Files
2	2	**Clone Block**	Java	46	2 occurrences in 2 Files
2	2	**Clone Block**	Java	160	2 occurrences in 2 Files

3. KPI Summary

Project1

KPI Summary	Description
Analyzability	**Your score of Analyzability 86 good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Analyzability** **There are 70 issues affecting this KPI**
Efficiency	**Your score of Efficiency 73 acceptable** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Efficiency** **There are 586 issues affecting this KPI**

Functionality	**Your score of Functionality 94 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Functionality** **There are 131 issues affecting this KPI**
Maintainability	**Your score of Maintainability 1 low** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Maintainability** **There are 53732 issues affecting this KPI**
Robustness	**Your score of Robustness 92 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Robustness** **There are 176 issues affecting this KPI**
Security	**Your score of Security 99 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Security** **There are 13 issues affecting this KPI**
Usability	**Your score of Security 99 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Security** **There are 13 issues affecting this KPI**
Reliability	**Your score of Reliability 100 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Reliability**

Conceptual Integrity	**Your score of Conceptual Integrity 100 very good**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Conceptual Integrity
Portability	**Your score of Portability 100 very good**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Portability

Project2

KPI Summary	Description
Analyzability	**Your score of Analyzability 81 good**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Analyzability
	There are 533 issues affecting this KPI
Efficiency	**Your score of Efficiency 34 low**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Efficiency
	There are 9182 issues affecting this KPI
Functionality	**Your score of Functionality 90 very good**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Functionality
	There are 1312 issues affecting this KPI
Maintainability	**Your score of Maintainability 1 low**

	Many anti-patterns, code issues, vulnerabilities and duplication can affect Maintainability **There are 220687 issues affecting this KPI**
Robustness	**Your score of Robustness 97 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Robustness** **There are 371 issues affecting this KPI**
Security	**Your score of Security 99 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Security** **There are 14 issues affecting this KPI**
Usability	**Your score of Usability 1 low** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Usability** **There are 288625 issues affecting this KPI**
Reliability	**Your score of Reliability 100 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Reliability**
Conceptual Integrity	**Your score of Conceptual Integrity 100 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Conceptual Integrity**
Portability	**Your score of Portability 100 very good**

	Many anti-patterns, code issues, vulnerabilities and duplication can affect Portability

Project3

KPI Summary	Description
Analyzability	**Your score of Analyzability 1 low** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Analyzability** **There are 604 issues affecting this KPI**
Efficiency	**Your score of Efficiency 1 low** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Efficiency** **There are 322 issues affecting this KPI**
Functionality	**Your score of Functionality 95 very good** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Functionality** **There are 20 issues affecting this KPI**
Maintainability	**Your score of Maintainability 1 low** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Maintainability** **There are 515 issues affecting this KPI**
Robustness	**Your score of Robustness 30 low** **Many anti-patterns, code issues, vulnerabilities and duplication can affect Robustness**

	There are 290 issues affecting this KPI
Security	**Your score of Security 1 low**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Security
	There are 321 issues affecting this KPI
Usability	**Your score of Usability 1 low**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Usability
	There are 545 issues affecting this KPI
Reliability	**Your score of Reliability 100 very good**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Reliability
Conceptual Integrity	**Your score of Conceptual Integrity 100 very good**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Conceptual Integrity
Portability	**Your score of Portability 92 very good**
	Many anti-patterns, code issues, vulnerabilities and duplication can affect Portability
	There are 33 issues affecting this KPI

EMBOLD DESCRIPTION IMAGES FOR THE ABOVE PROJECT

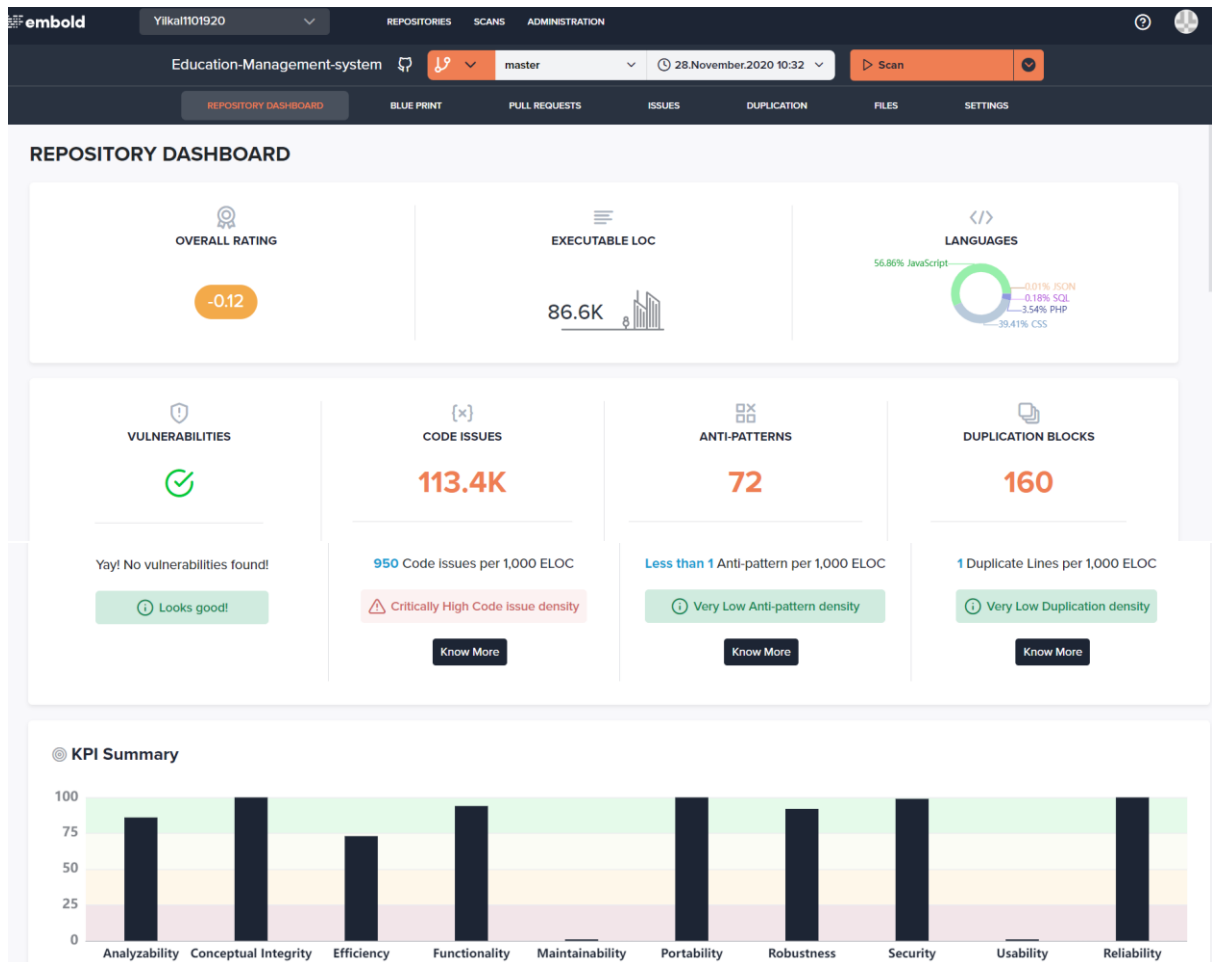FOR EDUCATION MANAGEMENT SYSTEM/Project1
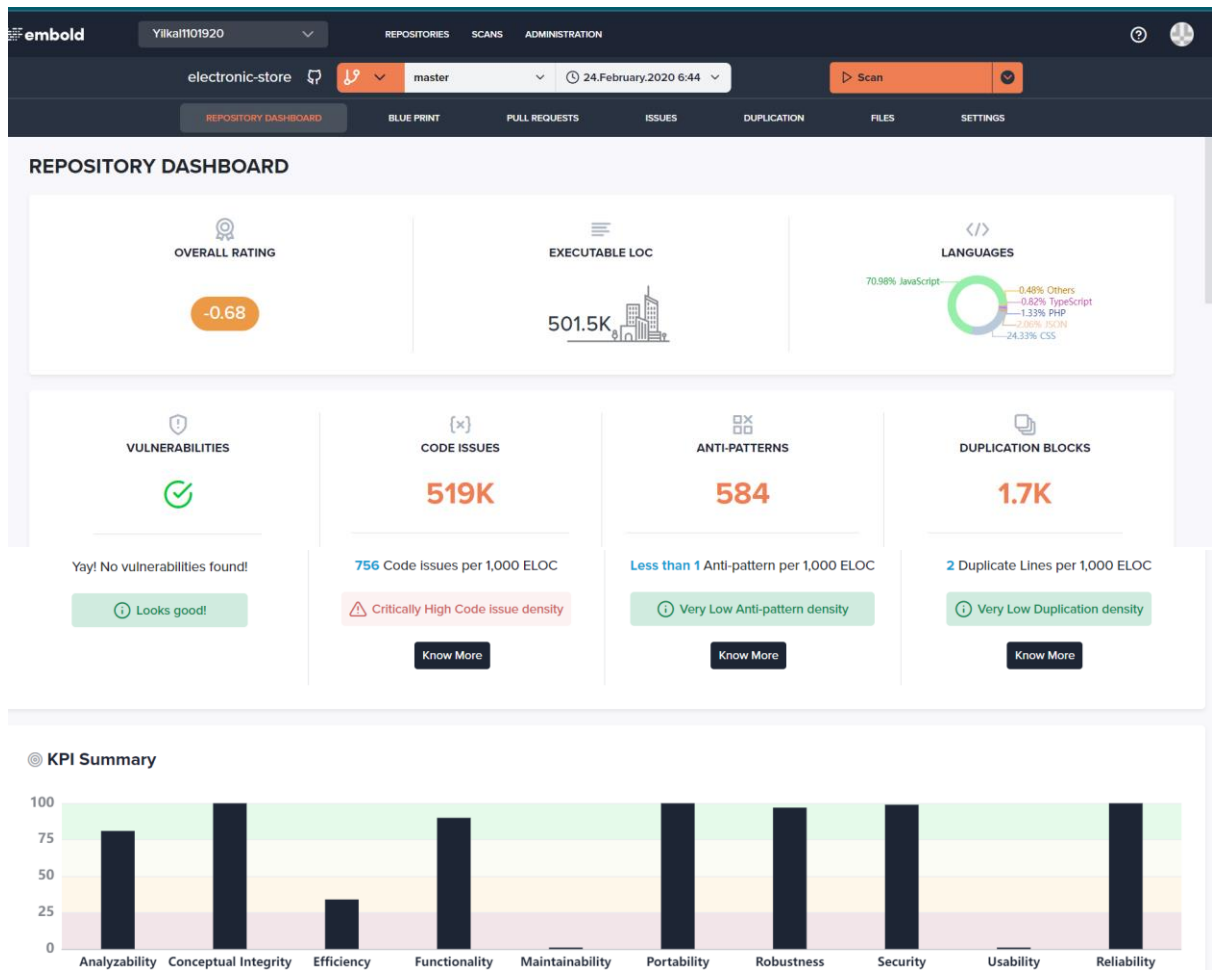

Figure 1

FOR ELECTRONIC STORE SYSTEM/Project2
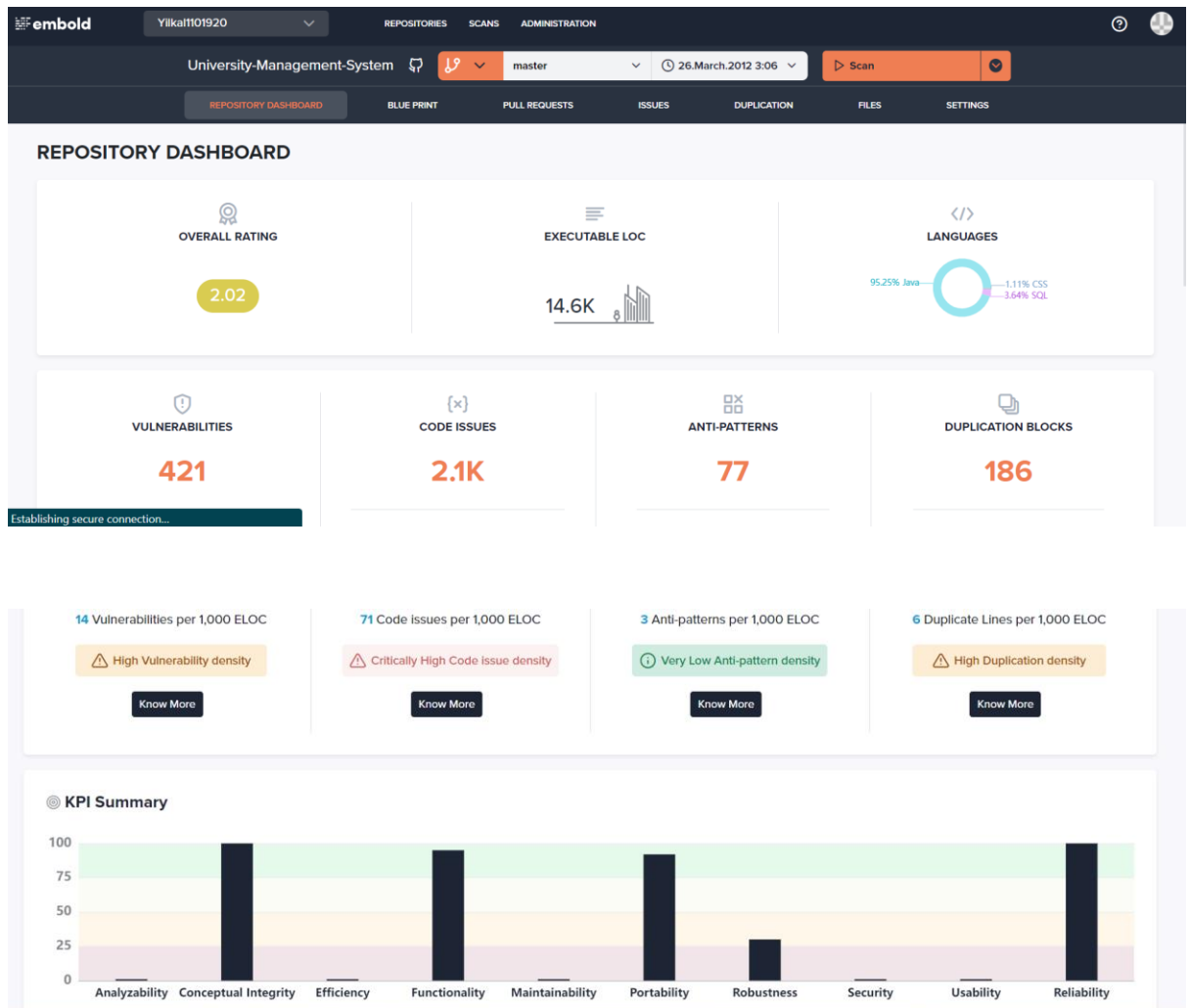

Figure 2

FOR UNIVERSITY MANAGEMENT SYSTEM/Project3

Figure 3