Empirical Analysis of Mood Metrics, CK Metrics and Code Smell Detection of Go Project

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| Maloy Kanti Sarker- BSSE0834 | Md. Shihab Shohrawardi-BSSE0813 |
| Abdullah Al Jubaer-BSSE0812 | Tulshi Chandra Das-BSSE0811 |

Institute of Information Technology

University of Dhaka

**Abstract**- With the rise of the OO paradigm has come the acceptance that conventional software metrics are not adequate to measure object-oriented systems. This has inspired a number of software practitioners and academics to develop new metrics that are suited to the OO paradigm. The MOOD metrics have been subjected to much empirical evaluation, with claims made regarding the usefulness of the metrics to assess external attributes such as quality and maintainability. We evaluate the MOOD metrics and CK metrics on 4 open source GO projects and show the result in a csv file. This is reflected in the increasing number of industrial software tools, such as Rational Rose, that enable automated computation of these metrics. Even though this metric suite is widely, empirical validations of these metrics in real world software development setting are limited.

**Index Terms- mood matrix, CK metrics, GO**

I. INTRODUCTION

Software quality metrics concentrate on process, product and project quality elements. The goal of software quality metrics is to identify the improvement of project, planning, process and product. Various studies on software metrics distribution share the same objective of offering a way of improving software development life cycle.

A metric is a standard unit of measure, such as meter or mile for length, or gram or ton for weight, or more generally, part of a system of parameters, or systems of measurement, or a set of ways of quantitatively and periodically measuring, assessing, controlling or selecting a person, process. [1] There were several studies to explain how metrics can be used to enhance the software quality. [2] [3] The calculation of a specific property of system performance or efficiency is a measure of the software metric (noun). A rule to measure a computer software object feature or attribute. Computer organizations, including specification reports, software object models and database structure models, can use metrics.

Since the early 1990s, object oriented (OO) techniques have beencommon in software development. Researchers have proposed se-veral metrics, including metrics for Chidamber & Kemerer (CK) [4] and object-orientated design (MOOD) [5] for quality assurance of OO software.

II. BACKGROUND

F.B Abreu presents a MOOD array of paradigms that defines the use in software code of object-oriented paradigms. These measures contribute to an object-based system assessment of efficiency and productivity. MOOD is referred to as encapsulation (MHF, AHF) as the basic structural mechanism of the object-oriented paradigm. [6], inheritance (MIF, AIF), [7] polymorphism (POF), and message passing (COF). Two main features are used in MOOD models: methods and attributes in every metric. Methods are used to perform many types of operations on objects such as achieving a status change. Attributes are used to represent the status of each entity in the system.

In the field of fault forecasting, several researchers have done significant work. The literature survey consists of developing CK parameters to explore various techniques used to model fault prediction. For object-based (OO) code, CK metric suit is the most used metrics. Chidamber et al. [8]have developed and implemented a new set of Object-Oriented Design application metrics. They found that Object Oriented can contain some of the application crisis solutions.

III. DATASET DESCRIPTION

IV**.** METHODOLOGY

V**.** RESULT

VI**.** FINDINGS

VII**.** CONCLUSION

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APPENDIX

Abbreviations

a-p: Audio player

c-4: Connect four

g: Gomoku

js: JavaScript

m-d: Mario dodger

m: Messenger

s: Shareit

ts: TypeScript

v-c: Video to MP3 converter

v-d: Video downloader

v-p: Video player

Source of JavaScript Projects

1. https://github.com/bryanbraun/connect-four

2. https://github.com/Muzishell/gomoku

3. https://github.com/totaljs/messenger

4. https://github.com/ShareIt-project/ShareIt

5. https://github.com/eashish93/youtube-downloader-app

6. https://github.com/jamesgeorge007/Youtube-Mate

7. https://github.com/emilhaugberg/mario-dodger

8. https://github.com/mdietger/JS-Tetris

9. https://github.com/Aveek-Saha/MusicPlayer

10. https://github.com/nokisnojok/electron-player

Source of TypeScript Projects

1. https://github.com/fabien0102/connect4react

2. https://github.com/jolestar/gomoku-wasm

3. https://github.com/sindresorhus/caprine

4. https://github.com/dapplabs/shareit

5. https://github.com/jimbuck/pully

6. https://github.com/webDva/Baka-Youtube-to-MP3-Converter

7. https://github.com/alexstrive/dodger

8. https://github.com/henshmi/Tetris.ts/tree/master/src

9.https://github.com/akabekobeko/examples-electron/tree/master/audio-player/src

10.https://github.com/eranshmil/video-player/tree/master/projects/main