**Topics in Software Engineering I**

**Assignment 1**

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**Section:** B

1. **Explore your project and find all options discussed in lecture 2 from Chapter 2. You need to prepare a google doc that highlights the potential issue that your code has. You may identify these issues with the help of** 
   1. **Identify deprecated technology or APIs. Just report the diagram.**

In project JRE system library [jre] there is a library file with extension .dom which is deprecated according to oracle.com.   
It is stated at oracle.com

“The com.sun.java.browser.plugin2.DOM, and sun.plugin.dom.DOMObject APIs have been deprecated and will be removed in a future release of Java. Applications can use netscape.javascript.JSObject to manipulate the DOM.”

**ii) Potential issues missing in the documentation but available in the code**

There is WalletFragment.java file in the project but there is no documentation available related to it in the project report.

**iii) Missing of technical documentation ( if applicable )**

Technical documentation refers to a document that explains the use, functionality and architecture of the product. The architecture of the project is mentioned along with its diagram and important functional requirements are written in the document except for some of the requirements which are in the code but not available in the documentation i.e. walletFragment and GPSTracker requirements.

1. **Use PMD to help identify potential coding errors and customize the rules you use to make sure only pertinent rules are applied to your source code.**
   1. **Create & view code issues directly from your editor**

protected void onCreate(Bundle savedInstanceState) {

**Bundle cannot be resolved to a type**

**Possible Solutions:**

* Create class ‘Bundle’
* Create interface ‘Bundle’
* Create enum ‘Bundle’
* Create record ‘Bundle’

setContentView(R.layout.activity\_register);

**R cannot be resolved to a variable**

**Possible Solutions:**

* Create class ‘R’
* Create interface ‘R’
* Create enum ‘R’
* Create record ‘R’
* Create constant ‘R’
* Create local variable ‘R’
* Create field ‘R’
* Create parameter ‘R’

// Spinner element

  Spinner spinner = (Spinner) findViewById(R.id.spinner);

**Spinner cannot be resolved to a type**

**Possible Solutions:**

* Create class ‘Spinner’
* Create interface ‘Spinner’
* Create enum ‘Spinner’
* Create record ‘Spinner’

spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {

**AdapterView cannot be resolved to a type**

**Possible Solutions:**

* Create class ‘**AdapterView’**
* Create interface ‘**AdapterView’**
* Create enum ‘**AdapterView’**
* Create record ‘**AdapterView’**
  1. **Track & prioritize code improvements like technical debt**

public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {

**Rule:**

ShortVariable

**Error Message:**

Avoid variables with short names like i, l

**Improvement:**

Variable names should be meaningful i.e. int price, long description

public class RegisterActivity extends AppCompatActivity {

**Rule:**

CommentRequired

**Error Message:**

Class comments are required

**Improvement:**

// class RegisterActivity inherit from AppCompatActivity

* 1. **Check your code quality**

public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {

**Rule:**

MethodArguementCouldBeFinal

**Error Message:**

Parameter AdapterView is not assigned and could be declared final

public void onNothingSelected(AdapterView<?> adapterView) {

}

**Rule:**

UncommentedEmptyMethodBody

**Error Message:**

Document empty method body

// Creating adapter for spinner

ArrayAdapter<String> dataAdapter = new ArrayAdapter<String>(this, android.R.layout.simple\_dropdown\_item\_1line, categories);

**Rule:**

UseDiamondOperator

**Error Message:**

Explicit type arguments can be replaced by Diamond Operator

* 1. **Apply at least 3 PMD rules with the help of tool**

public class RegisterActivity extends AppCompatActivity {

**Rule:**

AtLeastOneConstructor

**Error Message:**

Each class should declare at least one constructor

public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {

**Rule:**

MethodArguementCouldBeFinal

**Error Message:**

Parameter AdapterView is not assigned and could be declared final

public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {

**Rule:**

ShortVariable

**Error Message:**

Avoid variables with short names like i, l

* 1. **Generate the Abstract Syntax Tree of your source code using PMD.**

Please check the attached RegisterActivity.ast file for Abstract Syntax Tree

1. **Use the Check Style tool to review your code. At least apply 2 rules on your code using CHeckStyle**

public class RegisterActivity extends AppCompatActivity {

**Issue:**

The hierarchy of type RegisterActivity is inconsistent

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_register);

**Issue:**

Method def' child has incorrect indentation level 8, expected level should be 4.