Assignment On
Code Size & Design Size

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Determining Code Size for SPL-I Projected:

Lines of Code (LOC)

Definition	Lines of code are the "source code" of the program, and one line may generate one machine instruction or several depending on the programming language
Measurement Procedure	Automated Program
Value	3453

Commented lines of code (CLOC)

Definition	A comment is a programmer-readable explanation or annotation in the source code of a computer program.
Measurement Procedure	Automated Program
Value	184

Non commented lines of code (NCLOC)

Definition	The number of physical lines that contain at least one character which is neither a whitespace nor a tabulation nor part of a comment.
Measurement Procedure	Manually
Value	3269

Executable Lines of Code

Definition	Executable Lines of Code (ELOC) is the number of executable lines of code in a class (component) or a function.
Measurement Procedure	Automated Program
Value	2899

Blank Lines of Code

Definition	Blank Lines represents lines without any statement or symbol. They are present in code to increase readability and clarity.
Measurement Procedure	Automated Program
Value	370

Density of comments

Definition	Comment density is the percentage of comment lines in a given source code base, that is, comment lines divided by total lines of code.
Measurement Procedure	Manually
Value	0.063

Halstead's Approach

Definition	Halstead's theory is an analytical estimation technique to measure the size, development effort, and development cost of software products
Measurement Procedure	**Size of vocabulary η =η$_1$ + η$_2$** where, η = number of vocabulary in a program η$_1$ = number of unique operators η$_2$ = number of unique operands **Length of program N = N$_1$ + N$_2$** Where, N = Length of program N$_1$= Total occurrences of operators N$_2$ = Total occurrences of operators **Program Volume (V), V= N x log$_2$η**
Value	n=30+155=185 N=213+281=494 V=1393.305

Number of bytes of computer storage

Definition	Number of bytes used in the computer storage for the program text.
Measurement Procedure	Automated Program
Value	727 KB

Number of characters

Definition	Character is alphabets of written code.
Type	Automated program
Value	106377

Average number of characters per Class

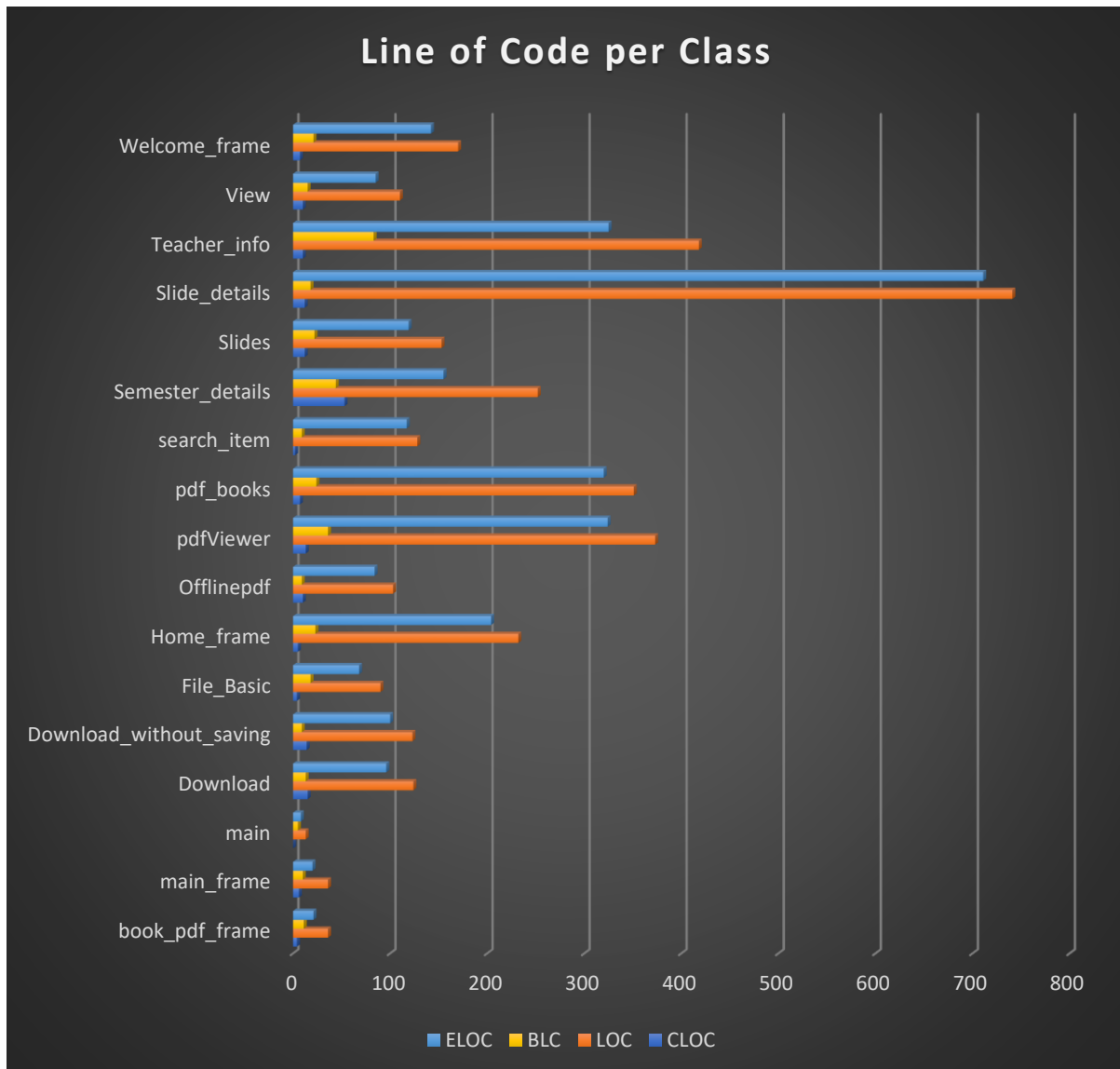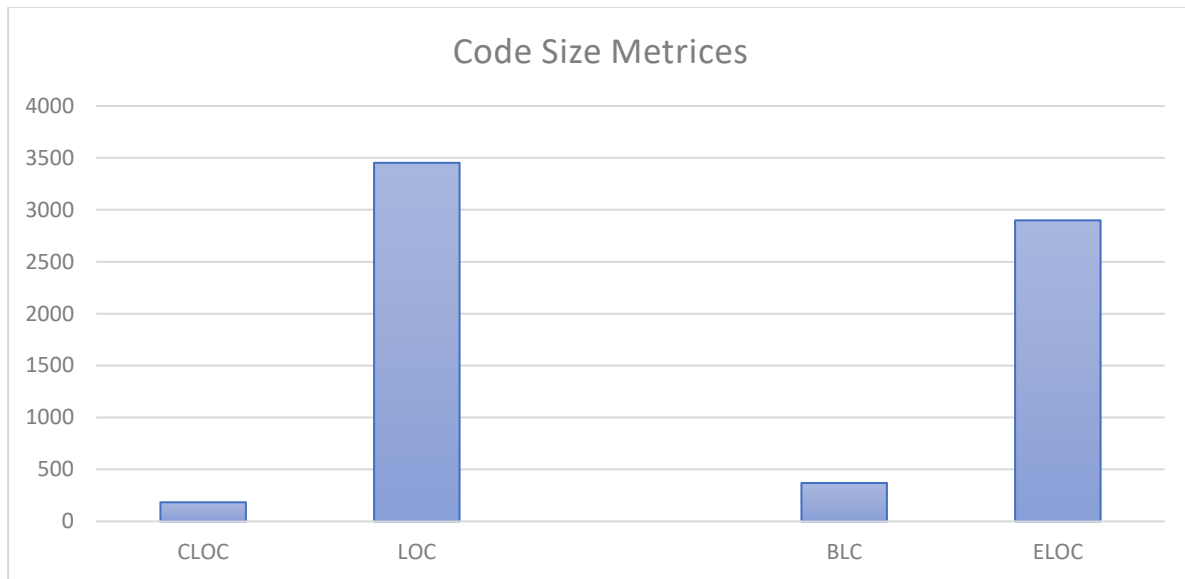| Definition	Average number of characters per class. Average character = total characters/ total class
Measurement Procedure	Manually
Value	6257

Figure 1:Line of Code Per Class
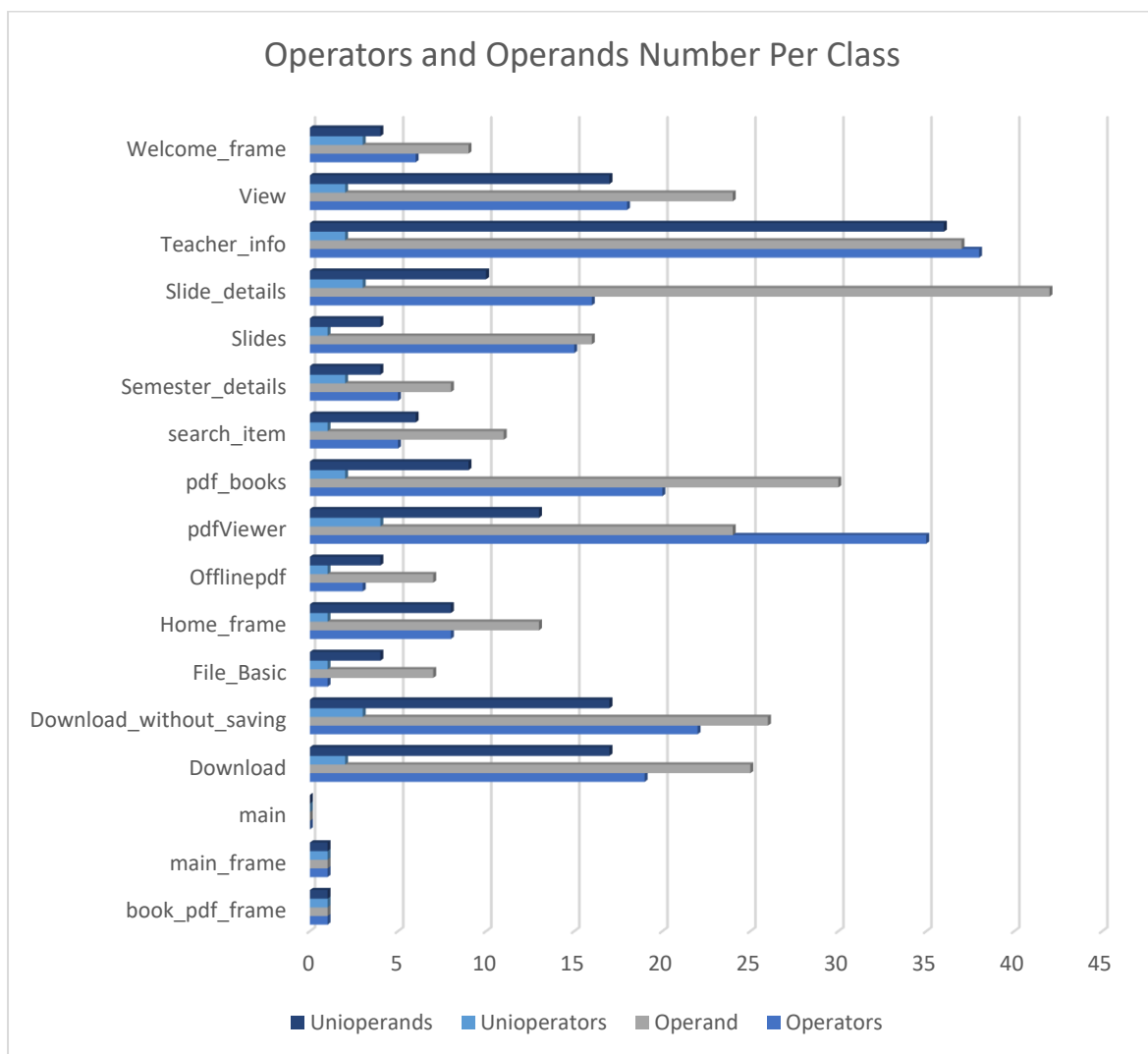
Figure 2: Code Size Properties

Figure 3: Operators and Operands Per Class

Determining Design Size for SPL-I Project

Number of sub-packages

Definition	A package defined inside another package is known as sub package
Measurement Procedure	Automated Program
Value	4

Number of classes

Definition	A Java class file is a file containing Java bytecode that can be executed on the Java Virtual Machine
Measurement Procedure	Automated Program
Value	17

Number of Interfaces

Definition	An interface in the Java programming language is an abstract type that is used to describe a behavior that classes must implement.
Measurement Procedure	Manually
Value	0

Number of design Patterns

Definition	A software design pattern is a general, reusable solution to a commonly occurring problem within a given context in software design.
Measurement Procedure	Manually
Value	1(Template Pattern)

Number of Methods

Definition	A method is a block of code or collection of statements or a set of code grouped together to perform a certain task or operation
Measurement Procedure	Automated Program
Value	98

Average method per class

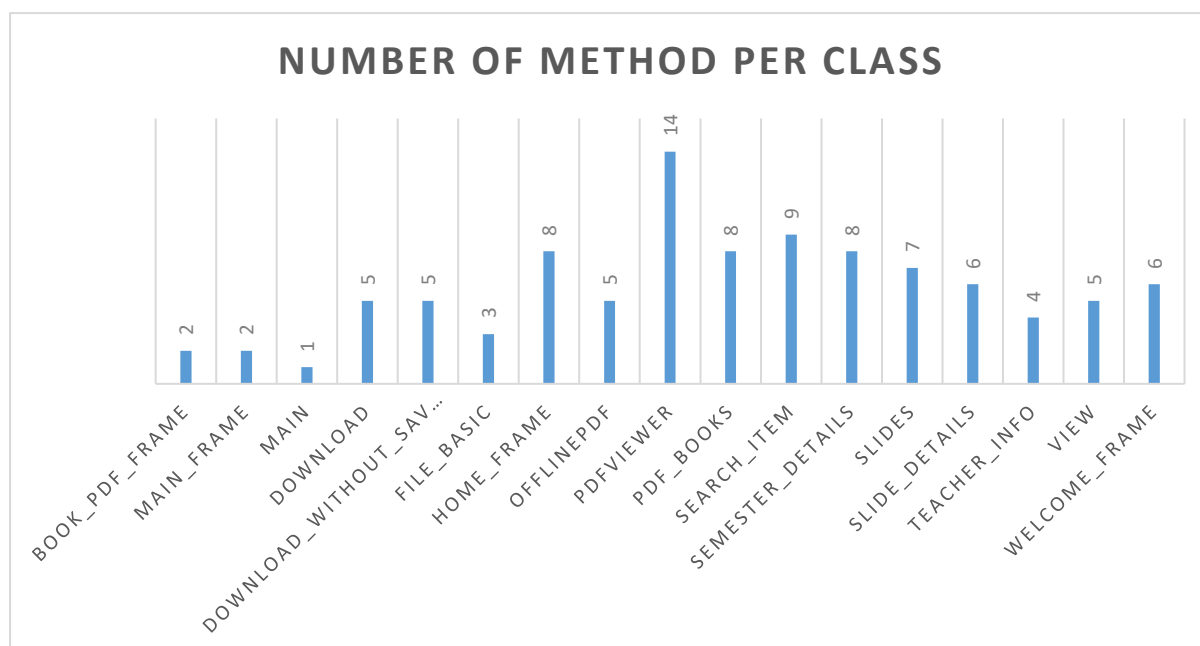| Definition	Average number of methods per class
Measurement Procedure	Manually
Value	5.76~6

Figure 4:Number of Method Per Class