Design Documentation

Assignment 3

In this assignment i have made the java file to download the jar file from url and extract its details.

- I have used nio pacakge to download the given jar file locally and saved in the current directory under the name "output.jar".
- I initially created and cleared the output.txt file to print all the results.
- In my readJar function I have used BufferOutputStream,BufferInputStream and FileOutputStream for reading and writing in the files.
- I have iterated through the jar file using enumeration and used it to iterate through the Jar entries then i scanned only through the ".class " files.Then i have called the Javap command line using the Runtime and Process classes and their input is read by BufferedReader line by line.
- I ran the javap command with -verbose flag to get the details about constant pool and JVM instructions.

“javap -verbose -classpath output.jar Classpath(except ending .class)”

- I have matched the line with the pattern “ [ ]*#Int: * ” to compare with the entries in constant pool.To get the number of elements in constant pool by finding the maximum Int in the buffer for each class.
- I have matched the line with the pattern “ [ ]*Int:.* ” to compare with the entries in JVM instructions.To get the statistics about the classes i have created a Map to store the Instruction name and their occurrences for every class.I later use the Heap(Priority Queue) to get the best 50 JVM instructions if present after iterating through all the class files present and adding the JVM instructions in map.
- I ran the javap command with -p flag to get the details about all methods in java files(-p for private functions too).

“javap -p -classpath output.jar Classpath(exceptending .class)”

- I have matched the line with the pattern “.*).*;” to compare with the methods in classes and increment number_methods (static int) to compute the average at end.
- I have used java .split method to extract various parts from input stream.

- I have made write_file function which uses FileOutputStream to append results to “output.txt” i added the results in the file.