1. The URL of your PHP program.
2. How long did you spend to do this assignment?
   1. I started in 9/23/22 the Friday the assignment was given and finished until 10/2/22 after spending hours in between those dates to complete the lab.
3. What problems (if any) did you encounter in this assignment, and if yes, how did you solve the problems?
   1. I encountered many problems during this assignment which were various syntax errors from translating from Java to PHP which Involved me at looking over the PHP documentation. I encountered errors when declaring and calling variables since I didn’t know that we needed to use “$this->e” until there was a paper posted in blackboard as a hint. In addition, I always found errors when my variables would be undefined even though they were in the same class, I had to look up many ways to fix it until I learned that global variables isn’t like Java on how its set up, instead you have to use “global $e” when you call it from a local function, but since we can use the calling mentioned before then I prefer to use $this->e.
   2. I also encountered errors when importing my classes into other classes via the “include”. I believe that one of the errors that it would give me would be that I’m calling the class twice or more than needed which to fix I needed to comment the include and it would work. This mostly happened when the main class called the tokenizer, token, and Token type class, in which I was including all 3 until I learned that I should only call one of them which is tokenizer. I came to that conclusion that if I’m accessing Tokenizer then tokenizer will be the one to access token and then token will access token type, in my head I imagined it as opening folders in a computer.
   3. The tokenizer would give me many issues once the translating was fully done and some of the issue that I would have would be with the Token Type class since enumeration is not a thing in ampps PHP 7.4 not until PHP 8.0 they would allow enumeration classes. I had to search up if there were any alternatives and the PHP manual would have some information but not what I needed, until I found out that I should just declare it as constants and use an abstract class (I found this out before the hint sheet was posted in BB).
   4. In addition, I found an error with the Tokenizer itself and it would be early on when we would want to split the text file. Two of the errors would lie on the while loops where we had a “>=” which would prevent the separation of the text file and to fix that I had to use only the “>” to be able to split everything successfully.
   5. Once that was done, I would encounter issues with the Btree and BNode classes since I realized that PHP does not use generics like how Java uses them. The only option I had after looking up ways to do this, I would just delete every instance of the generic T and leave the variables without it which ended up allowing me to move forward.
   6. After that I encountered errors within the process member function in which I would enter the exceptions which made me have to debug the code to see what line is causing such an error. When checking what was causing the error, it would specifically be the text file which was giving me a null when it encountered an extra space after certain lines in the code. For this I tried to use \s to deal with white spaces and I would still receive such and error, so what I did was to modify the text file itself to remove the null character.
   7. Soon after fixing that I found an error when trying to use the regular expressions when strings like “FF” or “MMF” would appear. I took me a while to understand where the error was happening until I realized that it was in the BTree class specifically where the switch cases are at. There were only 2 cases there and the rest were set to default and would not be accepted, so to fix that I had to create cases for the strings that appeared that contained “F”, “M” or “R”.
4. What did you learn in this assignment?
   1. I learned that PHP is extremely strict in certain situations compared to Java when it comes to calling variables and classes. I also learned the basics of PHP and how to use objects in there especially since its mostly used for the server side of programming.