Programming Fundamentals - Assignment 2

Similar to the first assignment, you should start by initializing a new Git repository and adhering to best practices. Create a blank text or Word document named 'Programming-Fundamentals-Assignment-2' and add it to your repository. This assignment consists of ten questions, the majority of which align with the topics we've discussed during the course. However, some questions might necessitate a bit of independent research. Make sure to commit after answering each question.

Once you've answered all the questions, convert your document into a PDF file and remove the original text or Word document from the repository. This should be your final commit. Subsequently, establish a new cloud repository in your GitHub Playground to host your local repository, and push everything to this GitHub cloud repository.

When the reviewer navigates to your GitHub repository, they should only see the PDF file; no other files should be visible. Finally, once you've completed all these steps, submit the link to your GitHub repository on Google Classroom.

1. Elucidate the following concepts: 'Statically Typed Language', 'Dynamically Typed Language', 'Strongly Typed Language', and 'Loosely Typed Language'? Also, into which of these categories would Java fall?”
2. "Could you clarify the meanings of 'Case Sensitive', 'Case Insensitive', and 'Case Sensitive-Insensitive' as they relate to programming languages with some examples? Furthermore, how would you classify Java in relation to these terms?”
3. Explain the concept of Identity Conversion in Java? Please provide two examples to substantiate your explanation.
4. Explain the concept of Primitive Widening Conversion in Java with examples and diagrams.
5. Explain the the difference between run-time constant and Compile-time constant in java with examples.
6. Explain the difference between Implicit (Automatic) Narrowing Primitive Conversions and Explicit Narrowing Conversions (Casting) and what conditions must be met for an implicit narrowing primitive conversion to occur?

7. How can a `long` data type, which is 64 bits in Java, be assigned into a `float` data type that's only 32 bits? Could you explain this seeming discrepancy?”
8. Why are `int` and `double` set as the default data types for integer literals and floating point literals respectively in Java? Could you elucidate the rationale behind this design decision?
9. Why does implicit narrowing primitive conversion only take place among `byte`, `char`, `int`, and `short`?
10. Explain “Widening and Narrowing Primitive Conversion”. Why isn't the conversion from `short` to `char` classified as Widening and Narrowing Primitive Conversion?