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**Assignment: Introduction to Programming Concepts in JavaScript**

Objective: To understand the basics of programming concepts in JavaScript and the tools used for development.

Instructions:

1. Research and write a paragraph defining a source code editor and an Integrated Development Environment (IDE).

**Answer:** **Source code editor:** is type of code or script writer software which gives edge to the programmers for writing error-free code as well as gives more functions which helps a lot. For example: Vs code, code block etc.

**Integrated Development Environment (IDE):** is type of software which helps for user to write effective code which is easily understandable or readable. For instance: text editor, compiler which is use for identify error in program.

2. Create a table listing the differences between IDE and source code/text editor.

**Answer:**

<b><u>Source Code</u></b>	<b><u>IDE</u></b>
Kind of tool or platform which helps to write error free code.	A software which helps to Identify error.
While writing program code, it helps us to identify error.	It is identify error after compiling.

3. Write a paragraph explaining the environment setup process and its importance in programming.

**Answer:** For setup environment for programming, **first step:** is that we should download VS code and install it. **Second step:** also download and install node JS and on command prompt box, we write a command for download typescript (npm I -g typescript). Finally, our all environment ready for use.

**Importance:** This environment gives us enormous benefits such as to write program code, identify error as well as gives us lot of functions and features which programmers had not in past.

4. Research and write a paragraph on what Visual Studio Code (VS Code) is and why it is considered a hybrid of a text/source editor and an IDE.

**Answer:** I reckon that; VS code is so popular in programming industry because it is much effective in compare of others text editor which gives superiority to programmer for writing error free code. While writing code, we observe that if we are writing false code, it through error towards programmer. On the other hand, it gives us facilities of extensions which is suitable for user to user while write code.

5. Write a paragraph introducing data types and provide a list of data types available in JavaScript.

**Answer:** These are types of data:

**String:** In this type, we write our code or text in double quotation mark like (" ").

**Number:** In this type, we write numeric number such as: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

**Boolean:** That type depends on true false conditions.

**Null:** In this type, we declare variable with null value.

**Undefined:** In this type, we declare variable but not its value which at the time of compile typescript gives us undefined.

**Symbol:** In this type, we write a symbol like @\$%.

6. Explain the concepts of strongly typed and loosely/weakly typed languages with examples.

**Answer: Strongly type:** To explain it, in strongly type we should write same variable type in time of compile the program, in contrast, if we write other type at the time of compilation of program, compiler through error. For example: Java, C#, C++ these all strongly type programming language.

**Weakly type:** Whereas, in weakly type language, these are not having strict rules like, if we write variable in string foam and next if we store different type in same variable, at compile time these languages do not through error, in fact, give us perfect output like JavaScript, typescript.

7. Differentiate between static and dynamic types with examples.

**Answer: Static type:** In static type languages before execute or write program, we must declare explicitly data type firstly then compile it otherwise these languages through error. For example: C++, C#.

**Dynamic type:** In dynamic type, it is fine that if we do not declare data type of variable, these sort of languages infer program or variable type by its own, for example: JavaScript, python, typescript.

8. Explain the concepts of implicit and explicit in JavaScript.

**Answer: Explicit:** In this scenario, we must tell to JS about function type.

**Implicit:** In this scenario, we do not tell type and in that case JS, python or php infer its types by its self.

- 9.** Describe variables in JavaScript and provide a list of variable types available.

**Answer:** Variable is type of container in JS which helps us to store differ sorts of date or information either it is in unlimited foam and we use it repetitively. **Types:** it has several types such as: Integer, Float or double, String, Boolean, Char, Array etc.

- 10.** Explain why objects are considered the king in JavaScript.

**Answer:** Because in JavaScript every things is object like in our daily life we observe that our house, vehicles, clothes these are all objects but method is different as well as concern with JavaScript, string, Boolean, number these all objects however their functions is different. In addition, if a user learns objects functions perfectly, in future he can be proficient in JavaScript.

- 11.** Explain the differences between null and undefined.

**Answer:** **Null:** null is type in programming language in which we declare variable value with null whereas, in **undefined** we declare variable but not its value, after execute program in compiler, it gives us result in undefined foam.

- 12.** Describe the rules for naming variables in JavaScript.


**Answer:** in JavaScript, it does not allow us to declare variable with symbol. We just write symbol like \_ \$ in middle for concatenate variable name for instance: My\_name.

- 13.** Explain the difference between case sensitive and case insensitive in JavaScript.

**Answer: Case sensitive:** in this scenario we must write same variable name in (console.log) which we declare before writing program in some programming language such as, JavaScript, C++. Like:

**Let myname: "Ali";**

**Console.log(myname)**



**Case insensitive:** it is okay that if we write any variable name while execute program in some programming language for example, PHP.

Myname = "Ali";

Print(myname);

Print(MYNAME);

Print(myName);