Homework Description

In this homework assignment, you will use one programming language to answer the given questions. You can use the programming language that you used in HW 1. Or you can choose a different programming language in the following list.

List of Programming Languages

- Go (https://golang.org/)
- Dart (https://dart.dev/)
- Pony (https://www.ponylang.io/)
- TypeScript (https://www.typescriptlang.org/)
- Kotlin (https://kotlinlang.org/)
- Nim (https://nim-lang.org/)
- Rust (https://www.rust-lang.org/)
- Julia (https://julialang.org/)
- Swift (https://swift.org/)
- Crystal (https://crystal-lang.org/)

List of Homework Questions

Using the chosen language, answer the below questions. You can type answers on a separate word document. Or you can write answers on a separate blank paper and scan it. In either way, **do not forget to include your name**.

1. Which language did you choose?

2. Describe characteristics of static type checking regarding type checking process and variable type.

3. Describe characteristics of dynamic type checking regarding type checking process and variable type.

4. Is your language statically typed? If yes, show that your language has the characteristics described in question 2. If no, skip this question. Feel free to write (or copy) programs with their results in your answer to show the characteristics. (*Remember what kind of*

examples were used to show characteristics of static type checking in the class.)

5. Is your language dynamically typed? If yes, show that your language has the characteristics described in question 3. If no, skip this question. Feel free to write (or copy) programs with their results in your answer to show the characteristics. (*Remember what kind of examples were used to show characteristics of dynamic type checking in the class.*)

6. Assume that we have a programming language A with the below description. Write any features of A that you can guess from the below description. You need to write at least three features of A to get a full point.

    'A is statically typed language, and it has a built-in type-inference. When a program written in A has type-errors, the errors are handled with weak typing system.'

7. Explain briefly how duck typing works in functions of dynamically typed languages.

Bonus Question. Modify the duck test in a way that identifies computer science students (CS students) at BSU. Observe what kind of behaviors/characteristics specify CS students at BSU. Then, complete the below CS student test.

CS Student test

If it _____ and it _____, then it must be a CS student at BSU.

(*We will vote to elect the most creative CS student test. If your answer is selected as the first place, you will have 3pts as a bonus point. If your answer is selected as the second place, you will have 2pts as a bonus point. Otherwise, you will have 1pt as a bonus point.*)

Submission Guideline

- You need to submit your assignment on Blackboard.
- If you directly type on a word document, submit it as pdf or docx.
- If you write answers on a blank paper, scan and submit it as a readable image file like pdf, jpg, or png.
- Do not forget to include your name.