SIT102 – Introduction to Programming

Answers for 2.1P Hello User 1

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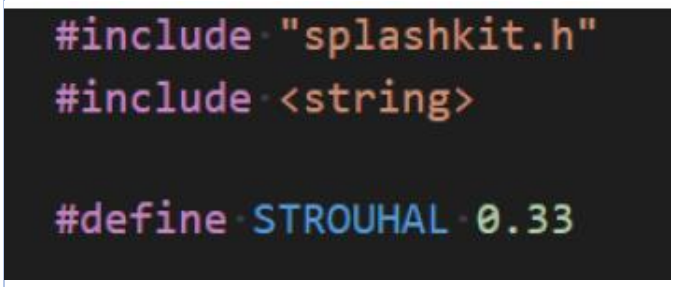
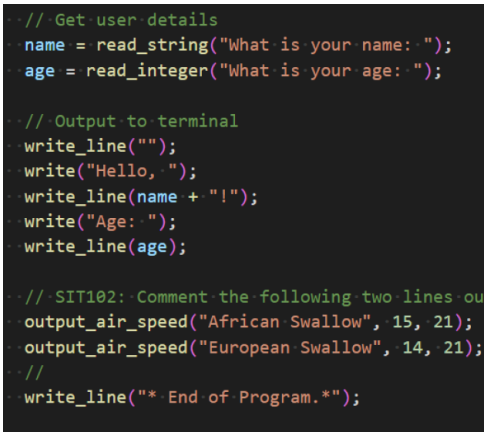
Question 1: With the aid of the given sample code in the tasksheet (see Figure), what are the corresponding variable(s) and constant(s)? In general, what are the **purposes of having variables and constants** in a program? Elaborate your answers with the sample code provided.

First of all, constants do not change their value due to any circumstances. Second, variables change their values according to the equation. Constants are usually written as numbers. Moreover, a constant is a fixed value and the value does not change during program execution. #define STROUHAL 0.33; it is a constant and it does not change . And a variable is a data item whose value can change during program execution. But they both act as data for computation, like ("European Swallow", 14, 21); .





Question 2: With the aid of the given sample code in the tasksheet (see Figure), briefly explain what are **global constants** and **local variables**, and under what scenarios should they be used?

Local variables are usually found in the relevant code block, it is usually defined and used only in the procedure, if a variable is created then we need to redefine it. Local variables are important and well understood.
They can be used only by statements that are inside that function or block of code. Local variables are not known to functions outside their own.

Global constants usually appear at the beginning of a program or in the first few lines of the main program and can be called by any part of the program.
Within a program, global constants maintain their values throughout the program's runtime, except for variables defined outside of code or functions. Thus, any function defined in a project program can be accessed and used throughout the program; only the global variables are hidden.
Global constants have been set to numeric values or available strings, with ages expressed as int within 3 bits. Thus an int of size 32 bits is allocated in memory. the result can be an even number, since it can contain 64 bits in memory. We need this extra size because the result in decimal can be 5-7 bits depending on the input, so a larger storage space is needed for the output. As long as there are no errors, then it is allowed to swap data of its type.

Question 3: With the aid of the given sample code in the tasksheet (see Figure), explain why we declare variable *age* as **integer** and variable *result* as **double**. Can we swap their data types? Elaborate your answer.

Because Age is an integer, like 11,14, and Double is a real number (which can have a decimal point), for example, calculating the flight speed of a bird gives 9.545455, which has a decimal point, so the data between the two cannot be used for exchange

Question 4: With the aid of the given sample code in the tasksheet (see Figure), name one procedure and one function. Explain under what scenarios should one use a function over a procedure?

As an example, we already know that void output_air_speed is a procedure and procedure is output to terminal.
int read_integer a function, and function is return a value.
When the code is output to the termina, a function should be used instead of a procedure, storing it in memory and defining the desired output type.

Question 5: With the aid of the given sample code in the tasksheet (see Figure), explain why we need **parameters** in functions or procedures.

Parameters allow us to send information or instructions to procedures and functions, such as the frequency at which a bird flaps its wings. Parameters are variables in a particular procedure. Because it is already included in the procedure, we use these variables in it. Using functions is also

End of questions (5)