Internet Programming 2

JavaScript Tutorial A

GUIDANCE:

Focus solely on structured programming concepts without involving arrays or other data structures and utilize `window.prompt` for input and `document.write` or `window.alert` for output for these examples. Attempt to write the solutions from scratch and without using any reference materials (at first). When each solution is working, put both the question and your answer into an AI chatbot and request that the AI document your solution and take a look at the comments it suggests. Thereafter, to gain more experience in using the AI (I know some of you may be doing this for the first time!), ask the AI to optimize your solution and see what it generates. Ask it for explanations at this stage, especially if it sends out stuff that you find difficult to understand, or appears "new" to you.

Please use file names suggested here for your solutions, so that we may easily locate to them later. Good Luck.

1. Simple Calculator [calculator-V1.htm]

- Create a simple calculator that asks the user for two numbers and an operation (add, subtract, multiply, divide) using `window.prompt`. Perform the operation and display the result using `window.alert`. Also experiment with document.write() for the output.

- Concepts:: In the first version, make use of only structured programming concepts without functions. Include facilities to handle errors in user input, for example if the user does not input a number and/or a correct operation

2. Temperature Converter [tempConverter-V1.htm]

- Write a program that converts temperatures from Fahrenheit to Celsius and vice versa. The user should be prompted to enter a temperature and the unit to convert to. Display the converted temperature using .

3. Guess the Number Game [guessNum-V1.htm]

- Implement a "Guess the Number" game where the computer randomly selects a number between 1 and 100, and the user has to guess it. Use `window.prompt` to get the user's guess and give feedback through `window.alert` if their guess is too high, too low, or correct. Actually, to test the program, you should reduce the range of the numbers from 1 to 10, so that it becomes easier to arrive at the answer!

4. Age into Days Converter [daysalive-V1.htm; daysalive-V2.htm]

- Ask the user for their age in years using `window.prompt` and calculate how many days approximately they have lived for. Display the result using `window.alert`. daysalive-V1.htm

- Now request for the users ID number and do the same, this time the number of days alive should be a closer estimate to the day! In theis version, also determine the day of the week, on which the user was born. daysalive-V2.htm

5. Basic Math Tutor [mathCaptcha-V1.htm]

- Design a simple math tutor program that generates a random addition question (e.g., what is 3 + 4?). Prompt the user for the answer and display a message using `window.alert` indicating whether they are correct or incorrect.

- Are you reminded of some forms of Captcha?

6. Leap Year Checker [leapYear-V1.htm]

- Write a program that prompts the user to enter a year and checks if it is a leap year. Output the result using `document.write`.

- ummmmm! Here you will need a precise formula for a leap year – and it is NOT as simple as Dividing by 4!!!!!

7. Simple Interest Calculator [simpleInterest-V1.htm]

- Create a program to calculate simple interest given principal, rate of interest, and time period. Use `window.prompt` to gather input from the user and `window.alert` to display the calculated interest.

- You must know these terms, even though they appear to be finance-related at first glance!

- Also explore concepts such as simple vs compound interest, and other aspects pertaining to investments and loans. As a matter of interest (forgive the pun!), can you answer this question: If I save 1c today, 2c tomorrow, 4c the following day, and continue doubling my savings per day, how long will it take for me to have saved R1m? Ignore interest here. Write a script and you may be surprised by the answer.

8. Countdown Timer [secoundsTimer-V1.htm]

- Ask the user to enter a number of seconds for a countdown using `window.prompt`. Display each second in the countdown using `window.alert` until reaching 0, then show a final message saying "Time's up!".

9. User Login Simulation [logIn-V1.htm]

- Simulate a login process where the user is prompted to enter a predefined username and password. If the username and password are correct, display a welcome message using `window.alert`; otherwise, inform them of the incorrect input.

10. Event Day Finder [eventFinder-V1.htm]

- Write a program that prompts the user to enter the number of days from today to an event (e.g., "How many days until your birthday?"). Calculate the day of the week the event falls on and display it using `window.alert`. Assume today is Sunday.
