**ICS3U Practical Test Unit 1-Variables, Decision Making and Loops**

**Instructions**: You may use your notes, your handouts and your code files to complete this practical test. You may work with your group. You may also use the internet to research information but cannot communicate directly with anyone else. You must write the code in a script block and not use an externally linked source file. Each program must run one after the other. If a program is not complete then erase the code that is preventing it from running. You are only getting marked on the execution of the solution and so will be awarded part marks for simply displaying the correct alerts and prompts, even if the entire program doesn’t work. If a program does not run it will be assigned a ZERO. All inputs and outputs must be done using **prompts**, **alerts and console.logs**.

When you are done save the file using the format **practical2019\_2\_YourNames.html (not following this format will result in a mark deduction of -1). An example might be practical2019\_2\_JoeMaryLisa.html.** Submit it according to your teacher’s instructions (go [here](https://sdsscomputers.com/_uploadFiles/) to submit it).

There will be a time bonus added to your mark based on the time of submission. You can only submit once. Second submissions will not be marked. Don’t forget, to get perfect, your alert/console and prompt messages must follow the exact formats specified in this handout. If it is not specified then you must create a reasonably formatted message of your own. Good luck!

**Marks 40(Application)**

**HINT**: don’ forget to put **+** in front of *prompt* to convert required inputs into real numbers!

**Problems**:

1. Create a program that display numbers that follow the pattern 1,2,3,4,…..10,15,20,25,…100,110,120,130…200,220,240,260…300,350,400,500

To get full marks you must separate all numbers by a comma. There should not be a comma after the last number. **HINT: loops are not needed but without them, it will be tedious!**

1. A town has a problem with its mice population. As it currently stands there are 2,198,888 of them. To solve this problem the town has hired a company to get that number down to just below 1,000,000. The company has promised to erase up to 5% of the mice each week. You should ask for this percentage and make sure it’s a value between 0.1 and 5.0. Next, determine how many weeks it will take? Display the population (rounded off to a whole number) after each week and current week number**. Use the console for all output and prompts for input**. It should look something like the following:

**Program**: By what percentage will the mice population be rescued each week?

**User**: 5

**Program(via console):**

Week Population

1 2088944

2 1984496

3 1885272

.

.

16 967789

It will take 16 weeks to get the population under control.

1. Display the first 1000 numbers that follow the pattern 0,1,3,6,10,15,21,28,….(use the console). Again comma separation is required for full marks.
2. A bank pays its investors 9% a year in interest. An investor who gives the bank $100.00 would have in their account $109.00 after the first year and $118.81 after the second year and so on. Create a program that will ask an investor for their initial investment and the number of years they would like to invest. Display in the console how much money would be in their account at the end of each year followed by the total amount of interest they made.

**Example**: note all console output is coloured in blue

**Program**: Welcome to Bob’s Bank. How much money would you like to invest?

**User**: 100

**Program**: How many years do you want to invest?  
**User**: 3

Year Amount

1. $109
2. $118.81
3. $129.50

You have made a whopping $29.50 in interest by investing with us!