Student name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Seminar group: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Complete Table below:

Specify all functions you have worked on in Tasks A and B in the sub-brief and complete the table below. Complete the table below for each function by filling the cells of the table. Add as many rows as necessary to include all the functions you have contributed to. An example is provided below for your guidance.

*Code Example:*

*def add\_numbers(a, b):*

*return a + b*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function name** | **What is the function input/output?** | **Explain the logic of the function.** | **How did you test it?** | **What are the challenges of this function?** |
| add\_numbers | Inputs: a, b (2 real numbers)  Output: a+b (1 real number) | Adds two numbers and return the sum of them | Tests (positive, negative, mixed signs).  (4, 3) 🡪 7;  (-4, 1) 🡪 -3;  (-1,-2) 🡪 -3. | This function raised error when (a,b) are strings or complex numbers. Etc. |
| calculator | Inputs: num1, num2 (integers)  Operator (string)  Output: answer of calculation (integer) | Works as a calculator. Can perform mathematical calculations from two numbers entered into the function | Tests (negative numbers, real numbers) Invalid operator / symbols. | Zero errors when diving by zero. Used try and except functions. |
| max\_of\_three | Inputs: num1, num2, num3 (integers, real numbers)  Output: answer (integer) | Compares two numbers and outputs the largest | Tests (input large numbers and small numbers | Know the use of the max function |
| winning\_numbers | Inputs: user\_list (integer)  Outputs: prize (string and integer) | Compares the user list with the existing list and calculates a score based on how many numbers match | Inputted wrong numbers and correct numbers | Duplicate numbers still returned First. I used set() function to remove duplicates. |
| Sum\_of\_evens | Inputs: min\_value, max\_vlaue(integers)  Outputs: total(integer) | Takes inputs and adds up all the even numbers between the numbers. | Input large and small numbers and strings | Incorrect inputs showed an error. |
| Is\_prime | Inputs: num (integer)  Outputs: output (Boolean) | If the number is larger than 1 it does modulo division for all numbers from 2 up to the inputted number. If any are 0 then the loop breaks and it is declared a prime number | Input multiple prime numbers and non-prime numbers | The function raised an error when strings or other datatypes are entered. |
| Are\_anagrams | Inputs: str1, str2 (strings)  Outputs: result (Boolean) | To compare two words and return True if they are anagrams | Test using anagram words and words that aren’t anagrams. Also words that have duplicate letters | If ither data types are entered. If the inputs have duplicate letters the function would return true. |
| Calculate\_average | Inputs: numbers (list)  Outputs: average (integer) | Adds together all unmbers in the list and divides the total by the length of the list. | Add small and large numbers and compared result to the answer form a calculator. | To add all the separate items of the list together |
| Calculate\_weekly\_pay | Inputs:hours\_worked(integer)  Outputs: total\_pay(integer) | Multiplies the normal rate by the hours under 36 hour and multiplies the overtime rate for hours over 35 hours. Returns the pay for the inputted hours. | Inputted hours under 36 and inputted hours over 35 . Calculate the correct answer separately | Adding the pay for the hours over the threshold to the one under the threshold. |
| Celsius\_to\_fahrenheit | Inputs: celsius (integer)  Outputs: Celsius\_to\_fahrenheit (integer) | Converts input number into the value of the number as fahrenheit | Inputted multiple values and checked the real fahrenheit with google | Making sure the calculation in python does it in the correct order according to BIDMAS. |
| Decrypt\_cypher\_text | Inputs: decrypt\_cypher\_text (string), Key (integer)  Outputs: decrypter\_text (string) | Takes an input and calculates the denarty value of each character. It then subtracts the key integer and finds the remainder of this value. | Inputted the string from Brightspace and it returned a cohesive sentence. | Iterating through the string and using the ord() function. |
| find\_maximum\_difference | Inputs: first\_list (list), second\_list (list)  Outputs: maximum (integer) | Takes two lists and iterates through all items in both and subtracts eachother from the other. Returns the largest difference. | Inputted different sizes of numbers and used a calculator to find the maximum value myself. | Learn how to use the new max() function and iterating through both lists. |
| fuel\_cost | Inputs: distance\_miles (integer)  Outputs: total\_cost (integer) | This function takes the input and and uses the constants to calculate the gallons used for the distance. It then calculates the litres of fuel used and returns the cost of the litres for the gallons used. | Changed the input to different values and checked if the result was the same as the answer form using a calculator. | Using the constants to get to the answer |
| is\_golden\_number | Inputs: n (integer)  Outputs: boolean (Boolean) | Iterates through the range of n with i. It then iterates through the range of n with k. This compares each factor with each other factor. It then calculates the addition of both factors. It then multiplies the factors together and if they have no remainder then it is a golden number. | Inputted golden numbers from the worksheet and numbers which aren’t golden numbers. | Iterating through all numbers up to n. Having a for loop in a for loop was difficult to understand. |
| km\_to\_miles | Inputs: kilometers (integer)  Outputs: miles | Multiplies input by 0.62 to get miles. | Inputted different numbers and confirmed if it was correct | Rounding to a certain number of decimal points was tricky. |
| letter\_occurrence | Inputs: input\_string (string)  Outputs: count(integer) | Iterates through the length of the input and if an element of the string is equal to a or A then it adds 1 to count variable and outputs it at the end. | Inputted different string and checked if the output was the same as the number of A or a’s. | Using the in function to loop through all the characters in string. |
| annual\_net\_income | Inputs: gross\_salary (integer)  Outputs: net\_salary (integer) | Uses if statements to compare if the what range the input integer is in to set the tax\_rate as applicable. Then multiplies the tax\_rate by the gross\_salary and outputs the value. | Inputted different salaries which would have all the different tax\_rates and got the correct answer. | Making sure to use the >= or <= signs for the correct sizes of gross\_sales |
| Restock\_inventory | Inputs: available\_items (integer), inventory\_records (list), current\_day (integer)  Outputs: available\_items (integer) | This function calculates if the day should be a restock day. It uses modulo division to see if the curren\_day value has a reamainder when divided by 7. If it has no remainder then it is a restock day. The restock amount is calculated by subtracting the available\_items from 2000 (the maximum value to restock to). If not a restock day then restock is set to 0. It returns restock and available\_items to be used in the daily\_sales function. | Used various print statements to see the values at different points throughout. | The difficulty was figuring out how to calculate the restock value when the available\_items were 2000 .My code would previously do 2000-2000 which would get a restock of 0 but the restock actually needed on that day would be 2000.I created a special case if statement for if the restock\_amount variable was calculated to be 0 then it would be changed to 2000. |
| Daily\_Sales | Inputs: available\_items (list), inventory\_records (list), current\_day (integer)  Outputs: available\_items | Calculates if the day should be a sales day by utilising modulo division. If the current\_day has a reamainder then it is a sales day. It uses the random library to calculate a random number of sales for that day. | I used print view variables at different stages. I used the test function of the code to check the problem with my code once I got to the generations stage. | The challenges included appending to the inventory\_records. I needed to add each days data to this using the append function. Another challenge was appending in the correct order so the csv file would have the data in the correct columns. |

1. Provide below screenshots to your GitHub repository and to your committed messages showing your progress properly.

*-------------- Provide all screenshots properly showing your progress in GitHub here --------------*

A screen shot of a computer

Description automatically generated

A person holding a black rectangular object

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer program

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A black background with white text

Description automatically generated with medium confidence

A screenshot of a computer

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1. Provide your GitHub link below:

-----------------------*Your GitHub link*--------------------------------------

https://github.com/DavidClapp-8/task-b-repository.git

1. List all references, including AI-generated tools, if applicable. If you used AI-generated tools, specify the name of the tool, provide screenshots/texts of the input/output, and explain how it was used in your project submission.

**References:**

**[1]. W3 Schools**

**A screen shot of a computer code

Description automatically generated**

**I researched how to append to the end of lists. This list would then be appended onto the inventory\_records to later be added onto the csv file.**

**[2].W3 Schools**

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**Used to calculate a random value to use for units sold each day. I needed information on how to write the syntax for this function.**

**[3]. W3 Schools**

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**I researched the snake case rules to make sure my variables all followed the legal variable names.**

**Referencing Usage of AI-generated tools:**

|  |  |  |  |
| --- | --- | --- | --- |
| AI-generated tool | Input | Output | How is it used? |
| **N/A** |  |  |  |