Programming – TU856/1 & TU858/1

Lab 13 – Tuesday, February 9th, 2021

Note: You are expected to finish all programs in your own time if you do not get these done during the lab session. This is your own responsibility.

Functions (part 2)

Remember: Use Symbolic names in your programs. Do not hard-code.

Write separate programs to:

1. Returning a value from a function. Write a program that uses a function to check if a number is even or odd. Your main() should allow the user to enter any number and this should be passed to your function. Your function should check if the number is even or odd and return a 1 if even or a 0 if odd. Your main() should then indicate the result.

2. Returning a value from a function. Write a program that uses a function to calculate the average of 3 numbers. Your main() should ask the user to enter these 3 numbers and they should be passed to the function as parameters. Your function should calculate the average and return this value back to the main(). Your main() should then display this average value.

3. Returning a value from a function. Write a program that uses a function to check for the highest value of 3 numbers. You should enter the 3 numbers using main() and these should be passed to your function. Your function should find the highest of these numbers and return it back to main(). Your main() should then display this highest number.

4. Returning a value from a function. Write a program that uses a function to calculate the most commonly used character from a number of 3 characters entered by a user. Your main() should read the 3 characters and these should be passed to your function. Your function should calculate the most common character of the 3 (assume the user enters more than one occurrence of any character). This character should then be returned to the main(). Your main() should then display this character with an appropriate message.

5. Pass by Value. Write a program to demonstrate the use of Pass by Value with a function. Begin by creating an integer variable in your main() and initialise it to 1. Print this value here. Next, call your function and pass this variable as a parameter to the function. Increment the parameter in your function by 2 and print this value. Your function should end here and control passed back to your main(). Print the value of

the variable in your main() again and see if it has changed value. Did the function increment the variable in your main()?

6. Pass by Reference. Write a program similar to Q5 above but this time use Pass by Reference to modify the integer variable declared in main().