

CP5805 – Assessment 1: Design Problem

Function List:

main(): displays the welcome menu before asking the user to choosing an option from the menu by entering a number from one to four. If one, two or three is selected, then main() calls get_instructions(), generate_simple_report() or generate_full_report() and returns to the welcome menu once the user is finished with that option. If option four is selected then the program exits.

get_instructions(): retrieves the program's instructions. These are then passed to main() to be displayed to the user.

get_valid_values(): generates the positive numeric values (five in this case) that will be passed to the statistic-generating functions (that is, get_simple_statistics() and get_full_statistics()) via main() in order to build the two statistical reports. If the user tries to enter an invalid value such as a negative number, then the function displays an error message to the user and prompts him/her to re-enter a value.

get_simple_statistics(): generates the statistics (count, sum and mean) that will be included in the simple statistical report. These values are then passed to generate_simple_report().

get_full_statistics(): generates the statistics (count, minimum, maximum, mean and standard deviation) that will be included in the full statistical report. These values are then passed to generate_full_report() via main().

generate_simple_report(): uses the data generated by get_simple_statistics() to build the simple statistical report that main() will display to the user.

generate_full_report(): uses the data generated by get_full_statistics() to build the full statistical report that main() will display to the user.

IPO Charts

main()

Input	Processing	Output
opt_number	values number_of_values value_sum mean_value minimum_value maximum_value SD_value	program_instructions simple_report full_report

get_instructions()

Input	Processing	Output
opt_number		program_instructions

get_valid_values()

Input	Processing	Output
prompt		values

get_simple_statistics()

Input	Processing	Output
values		number_of_values value_sum mean_value

get_full_statistics()

Input	Processing	Output
values		number_of_values minimum_value maximum_value mean_value SD_value

generate_simple_report()

Input	Processing	Output
number_of_values value_sum mean_value		simple_report

generate_full_report()

Input	Processing	Output
number_of_values minimum_value maximum_value mean_value SD_value		full_report