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| ***Computer Science 2061 -*  ASSIGNMENT #3** | | |
| **Program** | Description | **Execution Listing** |
|  | Write a program that calculates how long it takes sound to travel through air, water or steel. The program should display a menu asking the user to choose the medium. The program should then input the distance and calculate the time. The program should validate the user input and confirm that the distance is greater than 0. Please note that the speed of sound is 1100 ft/second in air, 4900 ft/second in water and 16,400 ft/second in steel. Please carry out and document multiple executions as shown to the right. | *>>>*  *Select a medium:*  *1. Air*  *2. Water*  *3. Steel*  *Enter your choice: 2*  *Enter the distance in feet: 1000*  *A sound wave takes 0.20408163265306123 seconds to travel 1000.0 feet through water*  *>>>*  *Select a medium:*  *1. Air*  *2. Water*  *3. Steel*  *Enter your choice: 2*  *Enter the distance in feet: 0*  *Distance must be greater than zero.*  *>>>*  *Select a medium:*  *1. Air*  *2. Water*  *3. Steel*  *Enter your choice: 4*  *Please choose between 1 and 3.* |
|  | Write a program that prompts the user for the number of students and number of tests per student. The program then inputs the test scores for each test, calculates the average for each test and also the overall average for all three tests. Execution listing should resemble what is shown on the right. | *>>>*  *Enter the number of students: 3*  *Enter the number of tests: 3*  *\*\*\*\*\*\*\*\*\*\*\*\*\*Test 1 Scores\*\*\*\*\*\*\*\*\*\*\*\*\**  *Enter the score for test 0 for student 0: 100*  *Enter the score for test 0 for student 1: 90*  *Enter the score for test 0 for student 2: 80*  *Average for test 0 was 90.0*  *\*\*\*\*\*\*\*\*\*\*\*\*\*Test 2 Scores\*\*\*\*\*\*\*\*\*\*\*\*\**  *Enter the score for test 1 for student 0: 90*  *Enter the score for test 1 for student 1: 80*  *Enter the score for test 1 for student 2: 70*  *Average for test 1 was 80.0*  *\*\*\*\*\*\*\*\*\*\*\*\*\*Test 3 Scores\*\*\*\*\*\*\*\*\*\*\*\*\**  *Enter the score for test 2 for student 0: 80*  *Enter the score for test 2 for student 1: 70*  *Enter the score for test 2 for student 2: 60*  *Average for test 2 was 70.0*  *Average for all three tests was 80.0* |

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| **Notes** |
| 1. In the execution listing, numeric values don’t have to appear exactly as shown above. For example, $44.50 is OK instead of $44.5. 2. Make sure that you use good programming style and documentation. 3. **USE VARIABLES FOR ALL VALUES IN THE PROGRAM**. 4. Unless instructed otherwise, always use the test data described in the problem. 5. Copy and paste your execution and code listings into the *Homework Template* document. Please ensure that:    * Problems are in the order listed on the assignment sheet (I.E. Program #1 first, Program #2 second, etc.)    * The execution listing corresponds with the code listing. In other words, the code listing will produce the execution listing. If it does not, no credit will be received for that problem. 6. The work you submit must be your own. Please note that any of the following actions are considered cheating:    * Electronically copying or inserting any code that you did not create.    * Manually copying or inserting any code that you did not create. |