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| **Program 01** |
| **Output** |
| >>>  ============== RESTART: /Users/TaylorJordan/Desktop/Untitled.py ==============  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  >>>  ============== RESTART: /Users/TaylorJordan/Desktop/Untitled.py ==============  Select a medium:  1. Air  2. Water  3. Steel  Enter your choice: 2  Enter the distance in feet: 0  Distance must be greater than 0  >>>  ============== RESTART: /Users/TaylorJordan/Desktop/Untitled.py ==============  Select a medium:  1. Air  2. Water  3. Steel  Enter your choice: 4  Please choose between 1 and 3 |
| **Source Code** |
| #This program determines the time it takes for sound to travek  #a specified distance through a specified material. It either  #returns the time, or catches incorrect user input  def main():  #User menu  print('Select a medium:\n')  print('1. Air')  print('2. Water')  print('3. Steel\n')  #Prompt user for choice  choice = int(input('Enter your choice: '))  #Validate choice is in menu range  if choice > 0 and choice < 4:  #Prompt user for distance  distance = float(input('Enter the distance in feet: '))  #Validate distance is in acceptable range  if distance > 0:  #Conditionals to determine which menu item was entered  if choice == 1:  time = (distance / 1100.0)  print('\nA sound wave takes {} seconds to travel {} feet through air\n'.format(time,distance))  elif choice == 2:  time = (distance / 4900.0)  print('\nA sound wave takes {} seconds to travel {} feet through water\n'.format(time,distance))  elif choice == 3:  time = (distance / 16400.0)  print('\nA sound wave takes {} seconds to travel {} feet through steel\n'.format(time,distance))  #Catch distance less than or equal to zero  else:  print('\nDistance must be greater than 0')  #Catch incorrect menu input  else:  print('\nPlease choose between 1 and 3')  if \_\_name\_\_ == "\_\_main\_\_": main() |

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| **Program 02** |
| **Output** |
| >>>  =============== RESTART: /Users/TaylorJordan/Desktop/hw3pr2.py ===============  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  >>> |
| **Source Code** |
| #This program asks for the number of tests and number of  #students. Then it prompts the user for each test score  #for each student and test. It then gives you the average  #for each individual test and the entire sum of the tests.  def main():  #Prompt user for number of students and number of tests  numberOfStudents = int(input('Enter the number of students: '))  numberOfTests = int(input('Enter the number of tests: '))  testCount = 0 #variable for number of tests  total = 0 #variable for storing total  average = 0 # variable for storing average  #outer while loop for keeping track of number of tests  while testCount < numberOfTests:  print('\n\*\*\*\*\*\*\*\*\*\*\*\*\*Test {} Scores\*\*\*\*\*\*\*\*\*\*\*\*\*'.format(testCount+1))  studentCount = 0 #variable for maintaining student count  count = 0 #counter variable  sum = 0 #variable for storing the total sum  testCount = testCount + 1 #update testCount  total = total + average #counter for total  #inner while loop for keeping track of each students test scores  while studentCount < numberOfStudents:  #Prompt user for individual test scores  score = int(input('Enter the score for test {} for student {}: '.format(testCount-1,count)))  count = count + 1 #update count  currentTest = count - 1  studentCount = studentCount + 1 #update student count  sum = sum + score  #check for end of while loop and print average  if count == numberOfStudents:  average = sum/numberOfStudents  print('Average for test {} was {}\n'.format((testCount-1), average))  finalTotal = total + average  #after all while loop iterations print the entire student average on all tests  if testCount == numberOfTests:  totalAverage = finalTotal/numberOfTests  print('Average for all three tests was {}'.format(totalAverage))    if \_\_name\_\_ == "\_\_main\_\_": main() |

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| **Program 03** |
| **Output** |
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| **Source Code** |
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| **Program 04** |
| **Output** |
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| **Source Code** |
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| **Program 05** |
| **Output** |
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| **Source Code** |
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