

# Assignment #3

*Problem Solving and Programming in C++  
Department of Computer Science  
Old Dominion University*

**Objectives:** The main objective of this assignment is to assess the student's ability to provide a complete Black-Box testing plan for a computer program.

**Description:** In this assignment, you will need to design a complete Black-Box testing plan for the following program. A party planner needs a quick way of calculating certain distributions of food to order. In this instance, types, sizes, and number of pizzas to order for pizza parties. In their experience, the best distribution of type, and number of slices per person in order to make the most people happy at a party follows a number of rules:

- Adults generally eat around 3 slices each.
- Teens eat an average of 4 slices each.
- Children typically eat 2 slices each.
- If it's a school night (Sunday – Thursday) and the party is at 5pm or later, Adults tend to eat less and leave early.
  - The number of adults you need to buy pizza for can be reduced by a third.
- 33% (1/3) of the total slices should be Cheese
- Of the remaining 67%, 62% of the slices should be Meat.
  - 75% of the meat slices should be Pepperoni
  - 25% Sausage
- Of the remaining 67%, 38% should be Veggie.
  - 11% of the veggie slices should include Mushroom.
- If the percentage value of slices for a type is less than 3 slices, no pizzas of that type will be ordered.
- For each category of pizza (cheese, pepperoni, sausage, veggie and mushroom), determine the number and size of pizzas by starting with the largest size possible that is less than or equal to the total slices for that category.

- If you have 52 slices and the sizes start at 18” with 14 slices, it would be 3 18” pizzas, followed by the next size down whose number of slices is less than or equal to the remainder of slices.
- If the remainder of slices for a pizza type is greater than 3, but smaller than the smallest pizza size in slices, then the smallest pizza size available will be added to the order for that type.
- 16” and 18” pizzas are reserved for parties with 50 or more attendees.
- Pizza Sizes:
  - 10”     6 slices
  - 12”     8 slices
  - 14”     10 slices
  - 16”     12 slices
  - 18”     14 slices

The program offers the ability to name a pizza party so that the calculation is saved for future reference. Past pizza parties can be viewed upon selection.

**Task:** You must design a complete Black-Box testing plan for the Pizza Party Calculator program. ***Your task*** is to apply what you have learned about black-box testing techniques to develop a full suite of test data for this program. Use the **template file** provided in the Instructions and supporting files on BlackBoard to organize your tests and test data.

**Submission notes:**

- Submit a single file (***text, MS word, or pdf***). Name your file “***Assg3\_cslogin***”, where the **cslogin** is your login ID for the computers at the Department of Computer Science at ODU.
- Your file must include the following four sections with test data for each:
  1. Test data that covers representative inputs
  2. Test data that provides functional coverage
  3. Test data that provides for boundary-values testing
  4. Test data that implements special-values testing
- Submit your file in the respective Blackboard link.