**Assignment 3 (due date: 11/4/2022)**

In this assignment you will ask to do coding in C using function, iteration, and arrays (compile and run).

Please submit your assignment into Canvas. Please submit the codes as .c files or copy them all into a single word (.doc or .docx) file but make sure that they are ready to be compiled. It is strongly recommended to write these codes in terms of functions! Please DO NOT submit pdf.

1: ***(Dice Rolling)*** Write a program that simulates the rolling of two dice. The program should use rand twice to roll the first die and second die, respectively. The sum of the two values should then be calculated. [*Note:* Because each die can show an integer value from 1 to 6, then the sum ofthe two values will vary from 2 to 12, with 7 being the most frequent sum and 2 and 12 the least frequent sums.] The following figure shows the 36 possible combinations of the two dice. Your program should roll the two dice 36,000 times. Use a one-dimensional array to tally the numbers of times each possible sum appears. Print the results in a tabular format. Also, determine if the totals are reasonable; i.e., there are six ways to roll a 7, so approximately one-sixth of all the rolls should be 7.



2: ***(Sales Commissions)*** Use a one-dimensional array to solve the following problem. A company pays its salespeople on a commission basis. The salespeople receive $200 per week plus 9% of their gross sales for that week. For example, a salesperson who grosses $3,000 in sales in a week receives $200 plus 9% of $3,000, or a total of $470. Write a C program (using an array of counters) that determines how many of the salespeople earned salaries in each of the following ranges (assume that each salesperson’s salary is truncated to an integer amount):

a) $200–299

b) $300–399

c) $400–499

d) $500–599

e) $600–699

f) $700–799

g) $800–899

h) $900–999

i) $1000 and over

3: ***(Union of Sets)*** Use one-dimensional arrays to solve the following problem. Read in two sets of numbers, each having 10 numbers. After reading all values, display all the unique elements in the collection of both sets of numbers. Use the smallest possible array to solve this problem.