

**In each exercise make your source code and output readable.**

**Exercise 1.** Write a program, which contains the following functions:

- (a) A function "input\_array(a,n)" which allows the user to input values for n elements of the array a.
- (b) A function "average(a,n)" which returns the arithmetic average of n elements of the array a.

Test the functions in a suitably defined main program.

**Exercise 2.** Write a program, which contains the following functions:

- (a) A function "input\_array(a,n)" which allows the user to input values for n elements of the array a.
- (b) A function "count\_odd(a,n)" which returns the number of elements that have odd value out of n elements of the array a.

Test the functions in a suitably defined main program.

**Exercise 3.** Write a program, which contains the following functions:

- (a) A function "random\_array(a,n,p,q)" which generates pseudorandom number from the range [p,q] for n elements of the array a.
- (b) A function "display\_array(a,n)" which displays the values of n elements of the array a on the screen.
- (c) A function "add(a,b,c,n)" which adds two vectors a and b and assign the sum to c.
- (d) A function "product(a,b,n)" which returns the scalar product of two vectors a and b.

Test the functions in a suitably defined main program.

**Exercise 4.** Write a program, which contains the following functions:

- (a) the function "random\_array(a,n,p,q)" from Exercise 3,
- (b) the function "display\_array(a,n)" from Exercise 3
- (c) the function "average(a,n)" from Exercise 1.
- (d) a function that modifies the content of an array by replacing elements that are smaller than the arithmetic average with the arithmetic average rounded to whole number.

Test the functions in a suitably defined main program.

**Exercise 5.** Write a program that simulates the rolling of five dice and prints "Yahtzee" if all five dice are the same; otherwise it should print "Try again.". In a program define the appropriate functions. Test the functions in a suitably defined main program.