

4COSC006C – Programing Principles I [Design]

Tutorial 1: Introduction to Algorithms

1. Write an algorithm for calculating the perimeter and surface area of square, if the length of the sides of the square is given by the user.
2. Write an algorithm for a program that will (1) ask for the user's name, then (2) print HI and the name. The program will then (3) ask what year the user was born, (4) calculate the age, and (5) print the age.
3. Construct an algorithm that will receive an integer from the screen, add 5 to it, double it, subtract 7 from it, and display the final number to the screen.
4. ABC company needs a weekly payroll report for its salespeople. Input to the program are the salesperson's name, number, and weekly sales. Output is the salesperson's name, number, and pay. Each salesperson receives a base weekly pay of \$300 as well as a 10% commission on his or her total sales. Develop an algorithm for this.
5. Construct an algorithm to read in three values from customer's bank account: the account balance at the beginning of the month, a total of all withdrawals from the account for the month, and a total of all deposits into the account during the month. A federal tax charge of 1% is applied to all transactions made suing the month. The program is to calculate the account balance at the end of the month by
 - a. Subtracting the total withdrawals from the account balance at the beginning of the month,
 - b. Adding the total deposits to this new balance,
 - c. Calculating the federal tax (1% of total transactions – that is, total withdrawals + total deposits),
 - d. Subtracting this federal tax from the new balance.

After these calculations, print the final end-of-month balance.