

1. Write a program which allows user to input a number of points earned on the exam, followed by calculating the grade based on given input points:

- less than 51 point → grade 5
- more than 50 but less than 65 → grade 4
- more than 64 but less than 81 → grade 3
- more than 80 but less than 91 → grade 2
- more than 90 → grade 1

2. Modify previous program to check if points are correctly input, assuming that allowed range is [0, 100]. If input is not within a given range, send a warning message and repeat input, otherwise write the final grade, as above.

3. Modify above program to allow input of points achieved on each module:

- T1 (Theory 1) 25 points max
- T2 (Theory 2) 25 points max
- LP1 (Lab Practice 1) 25 points max and
- LP2 (Lab Practice 2) 25 points max

After each module points are given by the user, check if the input is valid ([0-25]). When all inputs are given, calculate the sum of points and print the final grade. If any module points are not correctly input, start from beginning.

Example:

OUTPUT: Enter T1 points:

INPUT: 18

OUTPUT: Enter T2 points:

INPUT: 23

OUTPUT: Enter LP1 points:

INPUT: 21

OUTPUT: Enter LP2 points:

INPUT: 19

OUTPUT: You have 81 points and grade 2

4. Write a program that allows the user to send a string using serial port and then checks if the given string is a palindrome.

OUTPUT: Enter a string:

INPUT: dad

OUTPUT: String dad is a palindrome

5. User inputs coefficients a, b and c of a quadratic equation:

$$a*x^2 + b*x + c = 0.$$

Write a program which prints out the solutions of a given equation x_1 i x_2 (in complex form if discriminant is negative).

OUTPUT: Please enter coefficients a, b and c (separated by space):

INPUT: 1.0 2.0 3.0

OUTPUT: $x_1 = -1.0 + i * 1.41$, $x_2 = -1.0 - i * 1.41$

6. Using serial port, read natural numbers N and q and then print in Serial Monitor numbers from 2 to N which are divisible by q .

7. Using serial port, read natural number N . Check if N is a prime number and if it is, print the message in Serial Monitor „Number is prime“. Otherwise, print all prime divisors of N .

Note: print divisors during a runtime, it is not necessary to use dynamic arrays.

8. Write a program which prints in Serial Monitor all three-digit Armstrong numbers. A number is called Armstrong number if it is equal to the sum cubes of its digits (use function pow).

9. Write a program which simulates game „Higher-Lower“: in Serial Monitor print a number in the range from 1 to 100. User then inputs „H“ if he expects that the next value will be higher than the previous one, otherwise user inputs „L“. If user makes 3 correct guesses in a row, the program outputs „YOU WIN“, while for each incorrect guess program outputs „More luck next time!“
Note: for generating numbers from range [1, 100] use functions random() and randomSeed(). Which is a purpose of function randomSeed()?

10. Write a program which simulates game Hangman. By using serial terminal user sends letter by letter. Program checks if given letter is contained within a word which is to be discovered. If it is, program prints out the word using discovered letters and _ (underscore) for all non-discovered letters. Five missed letters will end the game with the message „GAME OVER“ printed out on Serial Monitor.