



Programming Fundamentals (CS1002) | Fall 2023

Assignment: 01

Total marks: 100

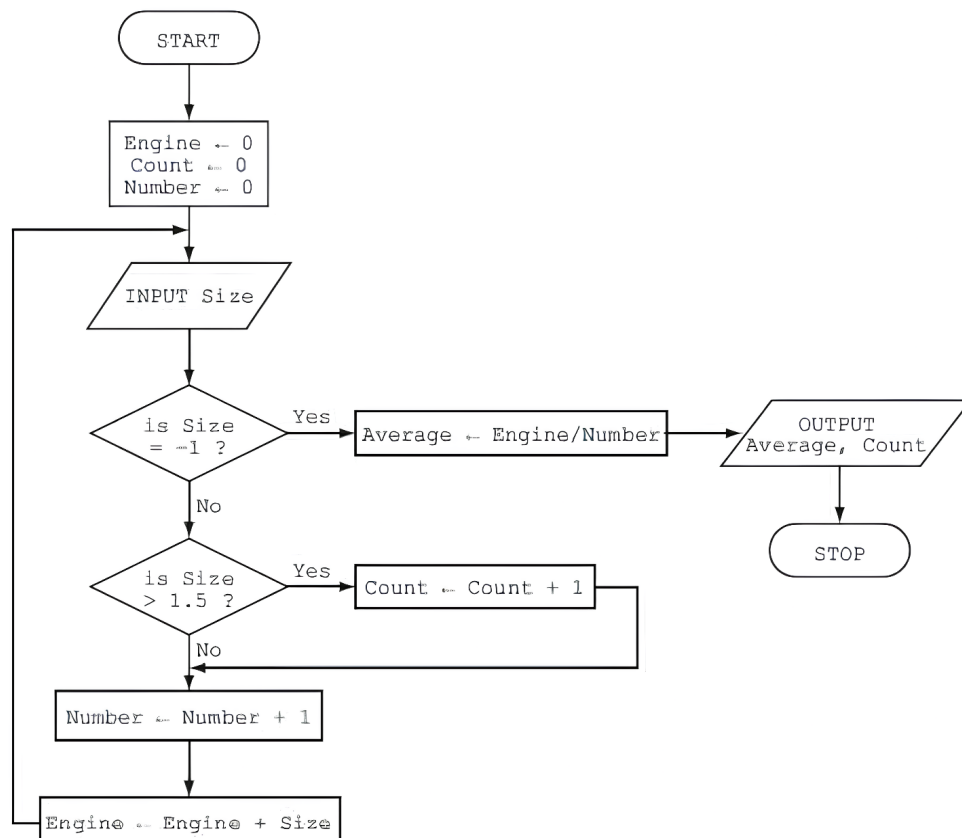
- Read the problem statement carefully and understand what is being asked. Failure to comprehend the problem statement may result in incorrect assumptions and answers.
- Write a clear and concise pseudocode that solves the problem without any extra steps.
- Draw a flowchart that represents the logic of your pseudocode. Use proper notation and avoid any ambiguity or confusion.
- Ensure that your pseudocode and flowchart are easy to read and understand. Unclear or hard-to-follow submissions may receive reduced marks.
- **Plagiarism will not be tolerated. Any evidence of copied work, including minor instances, will result in a grade of zero for the entire assignment.**
- Late submissions will not be accepted under any circumstances. Submit your work on time to avoid penalties.
- Complete the assignment on paper, then create a PDF version using apps like CamScanner or NoteBlock. Submit the PDF file to Google Classroom.
- Name your PDF file using the following convention: ROLLNO-NAME, e.g. (23P-8743-Zain.pdf).
- If you have any questions or concerns, ask before submitting your work. Lane excuses or attempts to justify plagiarism or late submissions will not be accepted.

Problems:

1. Design a pseudocode and a flowchart for a program that calculates the squares and cubes of the integers from 0 to 10. (10 marks)
2. Develop a flowchart that outputs a grade based on the following criteria: (10 marks)

Grade	Percentage Range
A	Above or equal to 80%
B	From 70% to 80%
C	From 60% to 70%
D	From 50% to 60%
F	Below 50%

3. Draw a flowchart for the following pseudocode that calculates the average grade of a class: (15 marks)
- Set the total and average to zero.
 - Set the grade counter to one.
 - While the grade counter is less than or equal to ten.
 - Ask the student to input the next grade.
 - Add the grade to the total.
 - Add one to the grade counter.
 - Set the class average to the total divided by ten.
 - Print the total of the grades for all students in the class.
 - Print the class average
4. Write the pseudocode for an algorithm that checks if an entered word is a palindrome. (15 marks)
- Hint:** A palindrome is a word or phrase that is spelled the same backwards as it is forwards.
- Examples:** civic, radar, level, rotor, kayak, madam, and refer.
5. Write a pseudocode that inputs a number from the user and checks whether the number is prime or not. (20 marks)
6. What is the output of the following flowchart when the input is the numbers: 3, 2, 1, 5, 0? Fill out the trace table below to show the values of the variables at each step of the flowchart. (20 marks)



Engine	Count	Number	Size	Average	Output

Goodluck 😊