National University of Computer and Emerging Sciences

Laboratory Manual

for

Operating Systems Lab

Department of Computer Science

FAST-NU, Lahore, Pakistan

Question 1: (Ordinary Pipes) Write a C or C++ program that accepts a filename as command line argument in the write process and send it to the read process. The read process reads the data from the file which is the array of numbers and sends the array to the parent which calculates the palindromes from the arrays.

The file contents are:

12 121 131 45 65
21 111 321 34 66
31 51 323 55 77

You have to find the palindromes row by row.

The result of the above file are:

121 131
111 66
323 55 77

A number is called a palindrome if it remains the same despite flipping. like 131 after flipping is also 131.

Question 2:

Make a **student attendance** system. Make two pipes, client and server. The client writes his roll number in a file in the format XXA-XXXX where X is a number and A is an alphabet. The server reads the rollnumber from the file and checks the format. In case of a wrong format it adds an error message otherwise writes, *Roll number: XXA-XXXX marked present*. Your client system should support multiple students to enter their rollnumbers and should also allow a reenter in case of error.

Question 3:

Extend your attendance system to support CI(Class In) and Co(Class Out). Now your input file should support XXA-XXXX-CI/CO format. In case of CI, enter the attendance and write *Roll number: XXA-XXXX marked present* and in case of CO it writes *Roll number: XXA-XXXX Goodbye have a nice day.*

Add support for format checking and a check to avoid attendance of the same student twice.(If a rollnumber is entered twice an error message saying *You're already here* should be written. Otherwise if a student which is never entered tries to leave the class write *You have not marked your attendance yet*.