

Assignment 2

Operating System Lab (CS342)
Department of CSE, IIT Patna

Date:- 18-Jan-2022

Deadline:- 18-Jan, 11:59 PM

Instructions:

1. All the assignments should be completed and uploaded before the deadline. Marks will be deducted for the submissions made after the deadline.
2. Markings will be based on the correctness and soundness of the outputs. Marks will be deducted in case of plagiarism.
3. Proper indentation & appropriate comments (if necessary) are mandatory. [2+2 marks]
4. You should zip all the required files and name the zip file as roll_no.zip, eg. 1501cs11.zip.
5. Provide a readme file with all the execution details (commands to execute) of the codes and outputs/observations (if necessary).
6. Make necessary assumptions wherever required. Also mention it in the readme file.
7. Upload your assignment (the zip file) in the following link:
<https://www.dropbox.com/request/oxQNOHjfyOKJhuc59EAG>

Problems :

1. Write a shell program that will create an array of size N having values $n_1, n_2, n_3, \dots, n_N$. Print a message "Search found along with its index of searched item S". All the values(N, n_i , S) should be taken from the Command Line Argument(CLA). Note: If the searched item does not contain in the array then output an error message.
2. Write a recursive shell program that should output the product of factorial of a number with the sum of all the prime no. less than equal to that number. Take N from CLA. E.g :
 $N = n$, Output = $\text{fact}(n) * \text{PrimeNoLessThan}(n) = n * \text{fact}(n-1) * (\text{if}(n \in \text{Prime number}) + \text{PrimeNoLessThan}(n-1))$
3. Implement an XOR function using a shell script that will take two numbers as CLA and output its XOR. Note: You need to convert the inputs in binary form. Also, implement the same using python/C and observe the time taken by both the programs for the same input(> 100).
4. Write a shell script to validate password strength. Here are a few assumptions for the password string.
 - Length – a minimum of 7 characters.
 - Contain both alphabet and number.
 - Contain one special char (/, (,), <, >, ?)If the password doesn't comply with any of the above conditions, then the program should report it as a <Invalid Password>.