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| *Agnel Charities*  **Fr.C. Rodrigues Institute of Technology, Vashi**  **Department of Electronics and Telecommunication Engg.**  **Skill Laboratory - Linux & Networking & Server Configuration (LNSC) (ECL604)** | | | | |
| **EXPT NO** | | **7** | |  |
| **AIM** | | **Shell scripting: Arithmetic operations** | | |
| **SOFTWARE** | | Linux | | |
| **THEORY** | | Arithmetic operators is used to perform arithmetic operations.  Bash script supports 11 arithmetic operators. All the operators with their uses is given below: + , -, \*, /, %, +=, -=, \*=, /=, %= | | |
| **Task 1** | | Write a bash script that will accept an input number from the user and will display if a given number is an even number or odd number:  **echo -n "Enter The Number: " read n**  **num=$(expr $n % 2)**  **if [ $num -eq 0 ]; then**  **echo "It is a Even Number"**  **else**  **echo "It is a Odd Number"**  **fi** | | |
| **Task 2** | | script for factorial of a number #factorial | | |
| **Method 1: using while loop**  #shell script for factorial of a number #factorial using while loop  echo "Enter a number" read num  fact=1  **while** [ $num -gt 1 ]  **do**  fact=**$((**fact \* num**))** #fact = fact \* num num=**$((**num - **1))** #num = num - 1 **done**  echo $fact | | | **Method 2: using for loop**  #shell script for factorial of a number #factorial using for loop  echo "Enter a number" read num  fact=1  **for**((i=2;i<=num;i++))  { fact=**$((**fact \* i**))** #fact = fact \* i  }  echo $fact | |
| **Task 3** | | **Write a shell script for testing palindrome** | | |
| 1. Echo “ enter the numerical number”  Read num  # Storing the remainder s=0  # Store number in reverse # order  rev=""  # Store original number # in another variable temp=$num  while [ $num -gt 0 ] do  # Get Remainder s=$(( $num % 10 ))  # Get next digit num=$(( $num / 10 ))  # Store previous number and # current digit in reverse rev=$( echo ${rev}${s} )  done  if [ $temp -eq $rev ]; then  echo "Number is palindrome" else  echo "Number is NOT palindrome"  fi | | | Output | |
| **Task 4** | Write a shell script for case conversion | | | |
| Shell Script to Convert a File Content to Lower Case or Upper Case Create a file such as **sample.txt,** a text file with a combination of lowercase, uppercase, digits and special character. Example: **File Content**  this is lowercase  THIS IS UPPERCASE  $P3C14L C#4R4CT3R$ 1234567890 OUTPUT **Uppercase**  THIS IS LOWERCASE THIS IS UPPERCASE  $P3C14L C#4R4CT3R$ 1234567890 Lowercase this is lowercase this is uppercase  $p3c14l c#4r4ct3r$  1234567890 Approach:  * Ask User Choice if they want to convert from Uppercase to Lowercase or vice- versa * Read the choice | | | * + Translating the file content as per the previous selected user choice and printing the output by the use of [tr](https://www.geeksforgeeks.org/tr-command-in-unix-linux-with-examples/) command.   + End of Script   t r '[A-Z]' '[a-z]' <$txtFileName  2)  # Function Call to get File getFile  # Converting to upper case if user chose 2 echo "Converting Lower-Case to Upper-Case " tr '[a-z]' '[A-Z]' <$txtFileName  ;;  3) # exiting for all other cases echo "Exiting..."  exit  ;;  esac Output: Sample text file and making our script executable  Showcasing content of sample text file with [cat](https://www.geeksforgeeks.org/cat-command-in-linux-with-examples/) command and modifying our script by  making it executable with [chmod](https://www.geeksforgeeks.org/chmod-command-linux/) command.  **Conversion Input and Output** | |

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**Conclusion : Arithmatic related basic commands were used in scripting to get output of arithmatic**

**Applications- Factorial, palindrome, case conversion, etc**