**Day5Doc01 (Sequence Problem)**

Sequences Practice Problems

1. Use Random Function (( RANDOM )) to get Single Digit

2. Use Random to get Dice Number between 1 to 6

3. Add two Random Dice Number and Print the Result

4. Write a program that reads 5 Random 2 Digit values , then find their

sum and the average

5. Unit Conversion

a. 1ft = 12 in then 42 in = ? ft

b. Rectangular Plot of 60 feet x 40 feet in meters

c. Calculate area of 25 such plots in acres

Write a program that takes a date as input and prints the day of the week

that date falls on. Your program should take three command-line arguments:

m (month), d (day), and y (year). For m use 1 for January, 2 for February, and

so forth. For output print 0 for Sunday, 1 for Monday, 2 for Tuesday, and so

forth. Use the following formulas, for the Gregorian calendar (where /

denotes integer division):

• y0 = y − (14 − m) / 12

• x = y0 + y0/4 − y0/100 + y0/400

• m0 = m + 12 × ((14 − m) / 12) − 2

• d0 = (d + x + 31m0 / 12) mod 7

**Day5Doc03 (if)**

1. Write a program that reads 5 Random 3 Digit values and then outputs the minimum and the maximum value

2. Write a program that takes day and month from the command line and prints true if day of month is between March 20 and June 20, false otherwise.

3. Write a program that takes a year as input and outputs the Year is a Leap Year or not a Leap Year. A Leap Year checks for 4 Digit Number, Divisible by 4 and not 100 unless divisible by 400.

4. Write a program to simulate a coin flip and print out "Heads" or "Tails" accordingly.

**Day5Doc04 (if-else)**

Selection Practice Problems with if, elif and else

1. Read a single digit number and write the number in word

2. Read a Number and Display the week day (Sunday, Monday,...)

3. Read a Number 1, 10, 100, 1000, etc and display unit, ten, hundred,...

4. Enter 3 Numbers do following arithmetic operation and find the one that

is maximum and minimum

1. a + b \* c 3. c + a / b

2. a % b + c 4. a \* b + c

**Day5Doc05 (Case Statement)**

Selection Practice Problems with case statement

1. Read a single digit number and write the number in word using Case

2. Read a Number and Display the week day (Sunday, Monday,...)

3. Read a Number 1, 10, 100, 1000, etc and display unit, ten, hundred,...

4. Write a program that takes User Inputs and does Unit Conversion of

different Length units

1. Feet to Inch 3. Inch to Feet

2. Feet to Meter 4. Meter to Feet

**Day6Doc01 (For Loop)**

Repetition Practice Problems with for loop

1. Write a program that takes a command-line argument n and prints a table of the powers of 2 that are less than or equal to 2^n.

2. Write a program that takes a command-line argument n and prints the nth harmonic number. Harmonic Number is of the form

3. Write a program that takes a input and determines if the number is a prime.

4. Extend the program to take a range of number as input and output the Prime Numbers in that range.

5. Write a program that computes a factorial of a number taken as input.

5 Factorial – 5! = 1 \* 2 \* 3 \* 4 \* 5

6. Write a program to compute Factors of a number N using prime factorization method.

Logic -> Traverse till i\*i <= N instead of i <= N for efficiency.

O/P -> Print the prime factors of number N.

**Day6Doc02 (While Loop)**

Repetition Practice Problems with while loop

1. Write a program that takes a command-line argument n and prints a

table of the powers of 2 that are less than or equal to 2^n till 256 is

reached..

2. Find the Magic Number

a. Ask the user to think of a number n between 1 to 100

b. Then check with the user if the number is less then n/2 or greater

c. Repeat till the Magic Number is reached..

3. Extend the Flip Coin problem till either Heads or Tails wins 11 times.

4. Write a Program where a gambler starts with Rs 100 and places Re 1 bet

until he/she goes broke i.e. no more money to gamble or reaches the

goal of Rs 200. Keeps track of number of times won and number of bets

made.

**Day6Doc03 (Functions)**

Functions Practice Problems

1. Help user find degF or degC based on their Conversion Selection. Use

Case Statement and ensure that the inputs are within the Freezing Point (

0 °C / 32 °F ) and the Boiling Point of Water ( 100 °C / 212 °F )

a. degF = (degC \* 9/5) + 32

b. degC = (degF – 32) \* 5/9

2. Write a function to check if the two numbers are Palindromes

3. Take a number from user and check if the number is a Prime then show

that its palindrome is also prime

a. Write function check if number is Prime

b. Write function to get the Palindrome.

c. Check if the Palindrome number is also prime