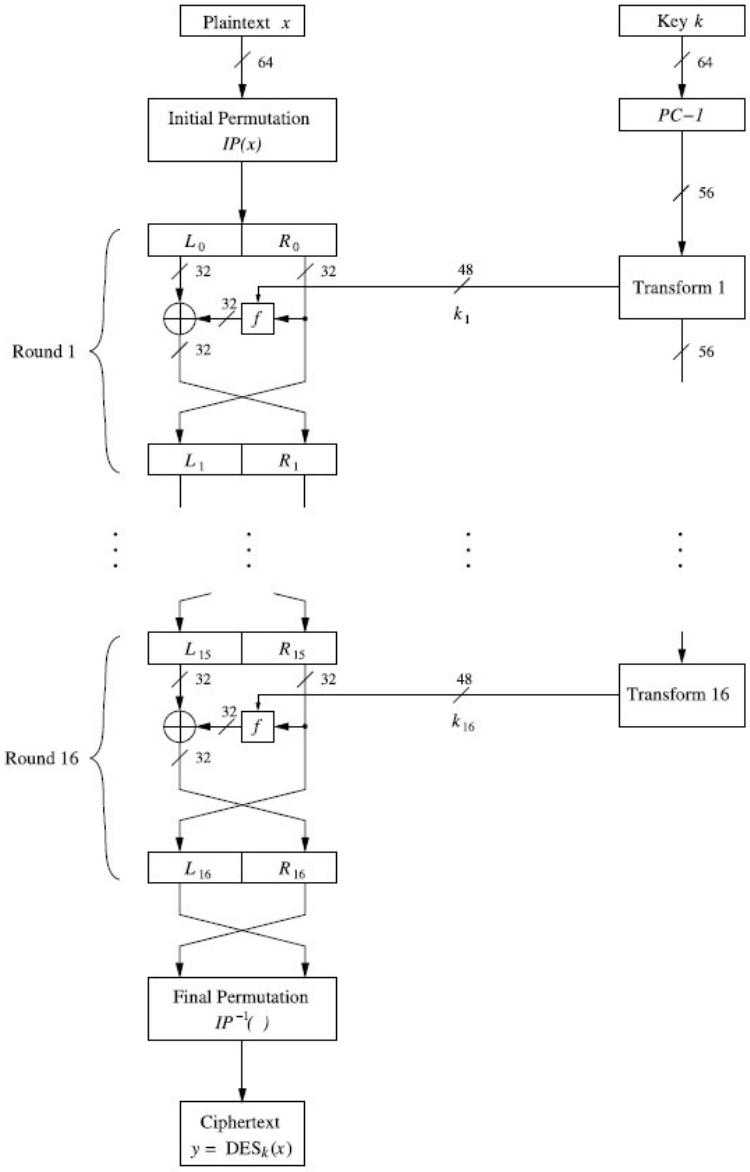
FAST NATIONAL UNIVERSITY
School of Computing
Spring 2021

Course Title:	Computer Organization and Assembly Language
Task:	Assignment #8
Weightage:	6%

Q1. In this assignment, you can work in group of two students. You have to use the assembly code that is developed in Assignments 5-7 to finalize the implementation of Data Encryption Standard as per the Feistel structure of the DES given below:



The Feistel structure of DES

The functions for Key schedule, and f-function is already programmed in the previous assignments and its code can be reused over here. The initial and final permutation is shown in figure below.

Initial permutation IP

IP							
58	50	42	34	26	18	10	2
60	52	44	36	28	20	12	4
62	54	46	38	30	22	14	6
64	56	48	40	32	24	16	8
57	49	41	33	25	17	9	1
59	51	43	35	27	19	11	3
61	53	45	37	29	21	13	5
63	55	47	39	31	23	15	7

Final permutation IP^{-1}

IP^{-1}							
40	8	48	16	56	24	64	32
39	7	47	15	55	23	63	31
38	6	46	14	54	22	62	30
37	5	45	13	53	21	61	29
36	4	44	12	52	20	60	28
35	3	43	11	51	19	59	27
34	2	42	10	50	18	58	26
33	1	41	9	49	17	57	25

In this assignment, your task is to finalize the assembly code for the Data Encryption Standard and share its code.