Independent University Bangladesh (IUB)

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Submitted To:
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Assignment1

Problem Solution

1.

The prefix, suffix, substring and subsequence with their length for following string are given page 1 and 2.

2. The Alphabet $\Sigma = \{0, 3\}$ length for each string are given page 2, 3, 4, 5.

3. sum of fibo sequence and Produce output are given page 5 and 6.

Answer to the question no – 1

(a) From Lexical Alphabet Δ, string α - dhakacitygunderamess,

	Prefix	suffix	sub-string	sub-sequence	Length
dhaka	x				5
dhakacity	x				9
Underamess		x			10
mess		x			4
Under a			x		6
city under			x		9
dhakaunderm				x	14
city amess				x	9

(b) From Decimal Alphabet D, string δ - 2706 20 210256

	Prefix	suffix	sub-string	sub-sequence	Length
2706	x				4
276	x				3
0256		x			4
256		x			3
2021			x		4
102			x		3
27056				x	5
270256				x	6

(c) From Binary Alphabet B, string $\beta = 10111001001011$

	Prefix	suffix	sub-string	sub-seque	Length
10111	x				5
011100	x				6
011		x			3
11011		x			5
00100			x		5
0100			x		4
1011111011				x	10
101011				x	6

Answer to the question no -02

(a) - $\Sigma = \{0, 3\}$

$\Sigma^4 = (0,3), (0,3), (0,3), (0,3)$

$= (00, 03, 30, 33)(0,3)(0,3)$

$= (000, 030, 300, 330, 003, 033, 303, 333)(0,3)$

$= (0000, 0300, 3000, 3300, 0030, 0330, 3030, 3330,$
$0003, 0303, 3003, 3303, 0039, 0333, 3033, 333)$

there are 16 number of string and length each string 4.

(b) $\Sigma^7 = (0,3)(0,3)(0,3)(0,3)(0,3)(0,3)(0,3)$

$= (00, 03, 30, 33)(0,3)(0,3)(0,3)(0,3)(0,3)$

$= (000, 030, 300, 330, 003, 033, 305, 333)(0,3)(0,3)(0,3)(0,3)$

$= (0000, 0300, 3000, 3300, 0030, 0330, 3050, 3330, 0003, 0303, 3003, 3303, 0033, 0333, 3053, 3333)(0,3)(0,3)(0,3)$

$= (00000, 03000, 30000, 33000, 00300, 03300, 30500, 33300, 00030, 03030, 30030, 33030, 00330, 03330, 30530, 33330, 00003, 03003, 30003, 33003, 00303, 03303, 30503, 33303, 00033, 03033, 30033, 33033, 00333, 03333, 30533, 33333)(0,3)(0,3)$

$= (000000, 030000, 300000, 330000, 003000, 033000, 305000, 333000, 000300, 030300, 300300, 330300, 003300, 033300, 305300, 333300, 000030, 030030, 300030, 330030, 003030, 033030, 305030, 333030, 000330, 030330, 300330, 330330, 003330, 033330, 305330, 333330, 000003, 030003, 300003, 330003, 003003, 033003, 305003, 333003, 000303, 030303, 300303, 330303, 003303, 033303, 305303, 333303, 000033, 030033, 300033, 330033, 003033, 033033, 305033, 333053, 000333, 030333, 300333,$

= 330333, 003333, 033333, 305333, 333333) (0,3)

= (0000000, 0300000, 3000000, 3300000, 0030000,
0330000, 3030000, 3330000, 0003000, 0303000,
3003000, 3303000, 0033000, 0333000, 3033000,
3333000, 0000300, 0300300, 3000300, 3300300,
0030300, 0330300, 3030300, 3330300, 0003300,
0303300, 3003300, 3303300, 0033300, 0333300,
3033300, 3333300, 0000030, 0300030, 3000030,
3300030, 0030030, 0330030, 3030030, 3330030,
0003030, 0303030, 3003030, 3303030, 0033030,
0333030, 3033030, 3333030, 0000330, 0300330,
3000330, 3300330, 0030330, 0330330, 3030330,
3330330, 0003330, 0303330, 3003330, 3303330,
0033330, 0333330, 3033330, 3333330, 0000003,
0300003, 3000003, 3300003, 0030003, 0330003,
3030003, 3330003, 0003003, 0303003, 3003003,

3303003, 0033003, 0333003, 3033003, 3333003,
0000303, 0300303, 3000303, 3300303, 0030303,
0330303, 3030303, 3330303, 0003303, 0303303,
3003303, 3303303, 0033303, 0333303, 3303,
3333303, 0000033, 0300033, 3000033, 3300033
0030033, 0330033, 3030033, 3330033, 0003033,

0303033, 3003033, 3303033, 0330033, 0333033
3033033, 3333033, 0000333, 0300333, 3000333
3300333, 0030333, 0330333, 3030333, 3330333,
0003333, 0303333, 3003333, 3303333, 0033333,
0333333, 3033333, 3333333)

There 128 number and length of each string 7.

Answer to the question no - 3

$Z_1 \leftarrow 0$

$Z_2 \leftarrow 0$

$Z_3 \leftarrow 1$

$Z_4 \leftarrow X_1$

$Z_5 \leftarrow 0$

$Y \leftarrow 0$

[A] if $Z_1 \neq Z_4$ GOTO B

GOTO E

[B] $Y \leftarrow Y + Z_2$

$Z_5 \leftarrow Z_2 + Z_3$

$Z_2 \leftarrow Z_3$

$Z_3 \leftarrow Z_5$

$Z_1 \leftarrow Z_1 + 1$

GOTO A

from this assignment we learned how to find out the prefix, suffix, substring and subsequence of any given string and also we learned how to find the string and string length of given alphabets. Also we are triging to sum of fibo sequence and produce output.