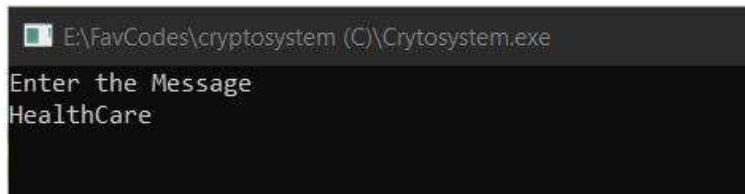


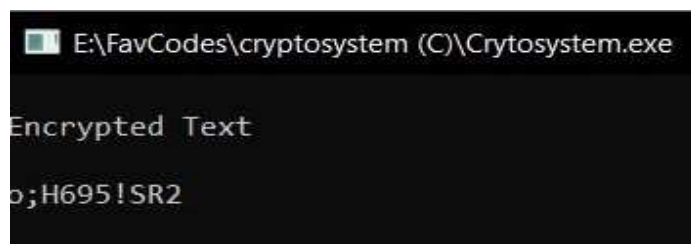
Cryptosystem - Result Analysis

1. Working of the Algorithm

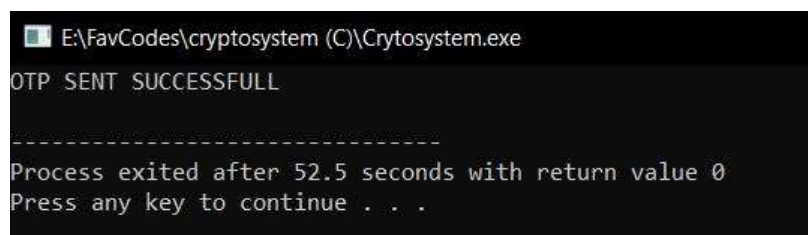
1.1 Sender's Input



1.2 Encrypted Text



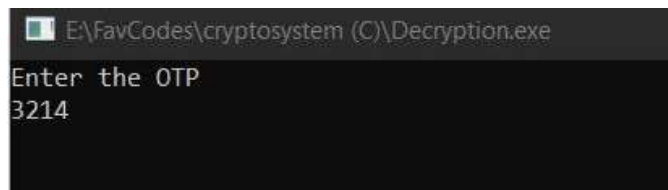
1.3 OTP Generated and Sent



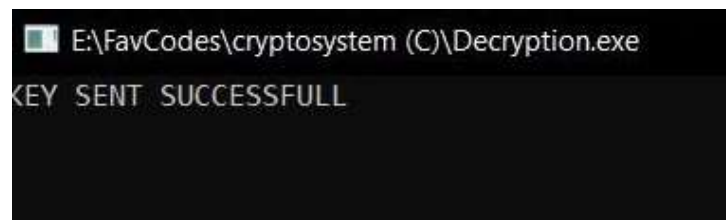
1.4 OTP Received



1.5 OTP Verification at Receiver's End



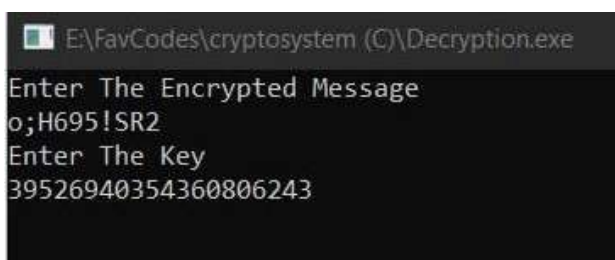
1.6 Key Sent once Verified



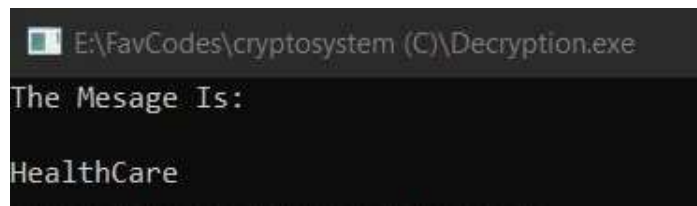
1.7 KEY Received



1.8 Receiver Input



1.9 Decrypted Text



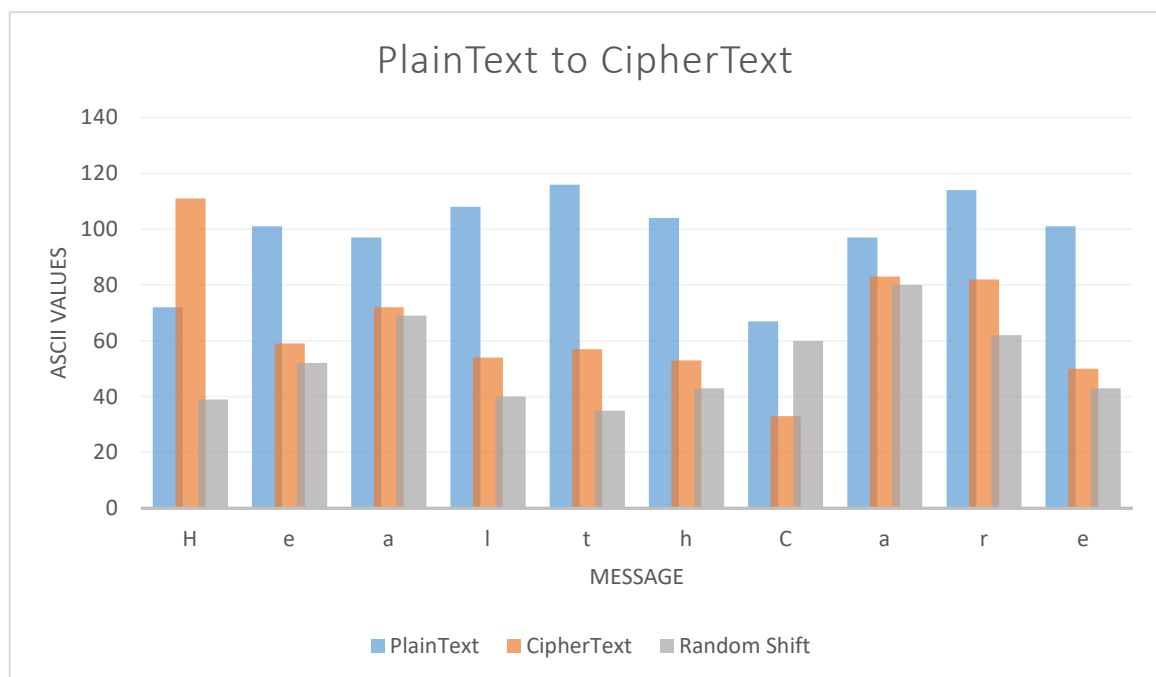
2 Mapping of letters

ASCII CHART

DEC	CHAR	DEC	CHAR	DEC	CHAR
32	SPA	62	@	96	`
33	!	65	A	97	a
34	"	66	B	98	b
35	#	67	C	99	c
36	\$	68	D	100	d
37	%	69	E	101	e
38	&	70	F	102	f
39	'	71	G	103	g
40	(	72	H	104	h
41	)	73	I	105	i
42	*	74	J	106	j
43	+	75	K	107	k
44	,	76	L	108	l
45	-	77	M	109	m
46	.	78	N	110	n
47	/	79	O	111	o
48	0	80	P	112	p
49	1	81	Q	113	q
50	2	82	R	114	r
51	3	83	S	115	s
52	4	84	T	116	t
53	5	85	U	117	u
54	6	86	V	118	v
55	7	87	W	119	w
56	8	88	X	120	x
57	9	89	Y	121	y
58	:	90	Z	122	z
59	;	91	[	123	{
60	<	92	\	124	|
61	=	93	]	125	}
62	>	94	^	126	~
63	?	95	_		

2.1 Mapping In Above Example

DEC	CHAR	→	DEC	CHAR
72	H	→	111	o
101	e	→	59	;
97	a	→	72	H
108	l	→	54	6
116	t	→	57	9
104	h	→	53	5
67	C	→	33	!
97	a	→	83	S
114	r	→	82	R
101	e	→	50	2



2.2 Message v/s Ascii Values

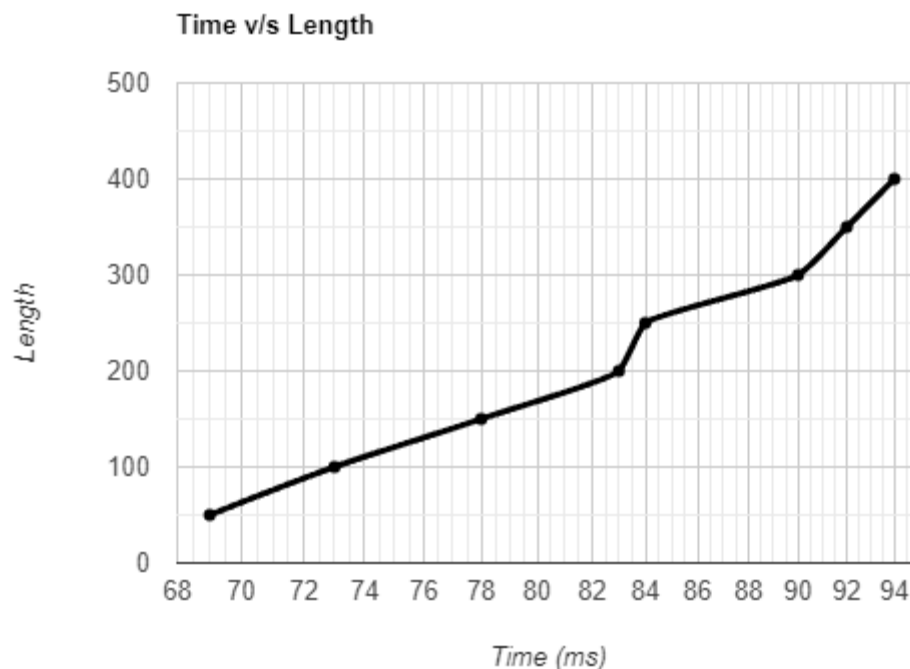
The y-axis of the graph represents ASCII values, while the x-axis represents individual characters. This graphical representation is designed to visually illustrate the disparity between the ASCII values of the encrypted text and the corresponding characters in the plaintext. The 'random shift' denotes the unpredictable numerical value that is introduced to the plaintext, thereby transforming it into the cipher text during the encryption process.

3. Time Taken

The entire process takes approximately 1 to 1.5 minutes to complete. The majority of this time is attributed to the API integration, specifically Twilio, which handles the transmission of the OTP (One-Time Password) and encryption key through cloud communication. Notably, the actual encryption and decryption processes themselves occur almost instantaneously, with negligible time taken. This efficiency holds true for messages up to a length of around 1844 characters; however, tests beyond this threshold have not been conducted. To elaborate, the 1 to 1.5 minute time frame encompasses both the encryption phase (including OTP generation and transmission) and the subsequent decryption phase (involving the transmission of the encryption key post OTP verification).

3.1 Time v/s Length Graph

Char Length (no.)	Encryption Time (ms)	Decryption Time (ms)	Total Time (ms)
50	35	34	69
100	36	37	73
150	38	40	78
200	42	41	83
250	42	42	84
300	46	44	90
350	46	46	92
400	47	47	94

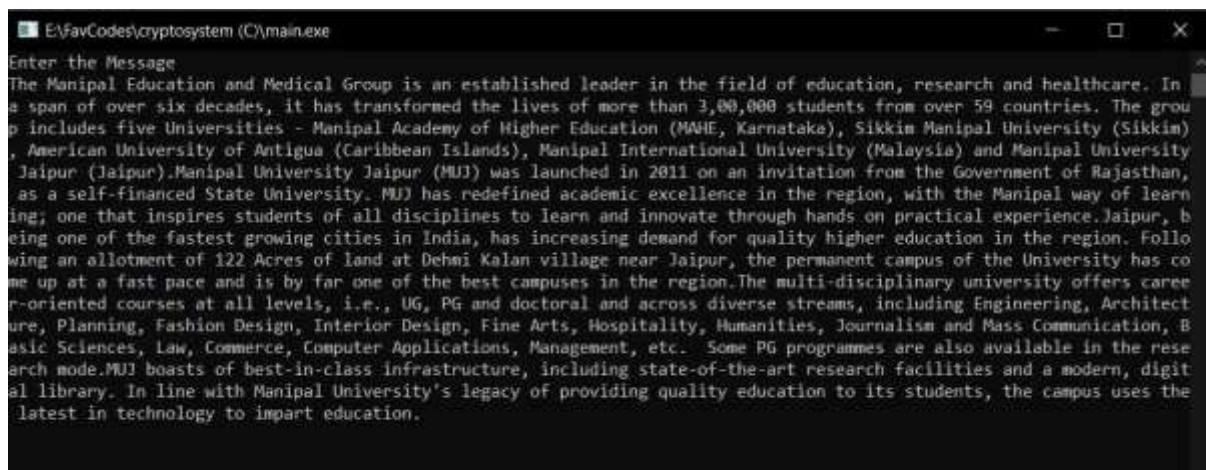


4. Tests

4.1 Randomness Test of the encrypted text

Plain Text	Cipher Text
Encryption	c02BeFf'Qy
Encryption	!!f%O:{:E4
Encryption	OAJ+H)Cp8X
Encryption	Kzp!0gyxp/

4.2 Robust Test



```
E:\FavCodes\cryptosystem (C)\Decryption.exe
The Message is:
The Manipal Education and Medical Group is an established leader in the field of education, research and healthcare. In a span of over six decades, it has transformed the lives of more than 3,00,000 students from over 59 countries. The group includes five Universities - Manipal Academy of Higher Education (MAHE, Karnataka), Sikkim Manipal University (Sikkim), American University of Antigua (Caribbean Islands), Manipal International University (Malaysia) and Manipal University Jaipur (Jaipur). Manipal University Jaipur (MUJ) was launched in 2011 on an invitation from the Government of Rajasthan, as a self-financed State University. MUJ has redefined academic excellence in the region, with the Manipal way of learning; one that inspires students of all disciplines to learn and innovate through hands on practical experience. Jaipur, being one of the fastest growing cities in India, has increasing demand for quality higher education in the region. Following an allotment of 122 Acres of land at Dehml Kalan village near Jaipur, the permanent campus of the University has come up at a fast pace and is by far one of the best campuses in the region. The multi-disciplinary university offers career-oriented courses at all levels, i.e., UG, PG and doctoral and across diverse streams, including Engineering, Architecture, Planning, Fashion Design, Interior Design, Fine Arts, Hospitality, Humanities, Journalism and Mass Communication, Basic Sciences, Law, Commerce, Computer Applications, Management, etc. Some PG programmes are also available in the research mode. MUJ boasts of best-in-class infrastructure, including state-of-the-art research facilities and a modern, digital library. In line with Manipal University's legacy of providing quality education to its students, the campus uses the latest in technology to impart education.
Time taken to decrypt 81 ms
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```