

JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY, NOIDA

Department of CSE & IT



Project Report

Algorithm and Problem Solving

Military Defense System

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INTRODUCTION

Our project introduce algorithmic analysis and solutions to the various problems of the military (wartime and day-to-day). We try to solve the problems relating to war strategies, day-to-day resource/ammo allocation, troop development, communication, cryptography, warship deployment, missile interception systems, aircraft/warships collision detection systems, border defense etc.

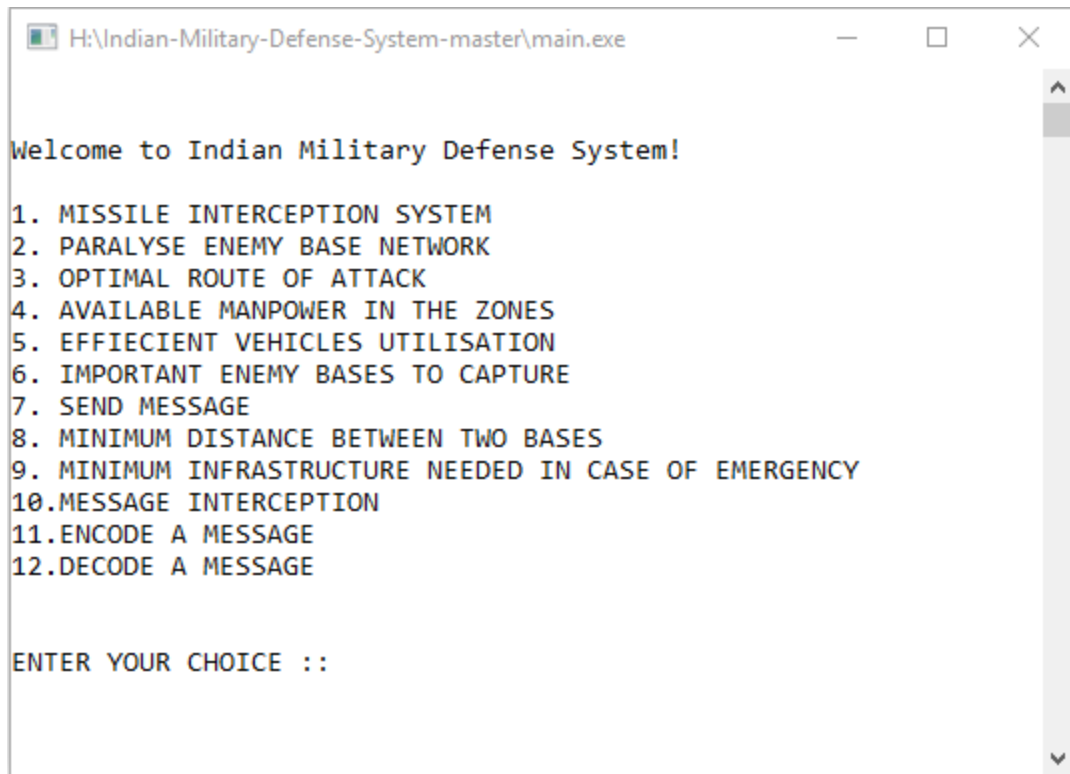
ALGORITHMS

- Dijkstra's
- MST algorithms
- Backtracking
- String algorithms
 - Knuth Morris Pratt
 - Huffman Coding
 - Rabin Karp Algorithm
 - Finite automata matcher
- Cryptography Algorithms
- Job scheduling Algorithms

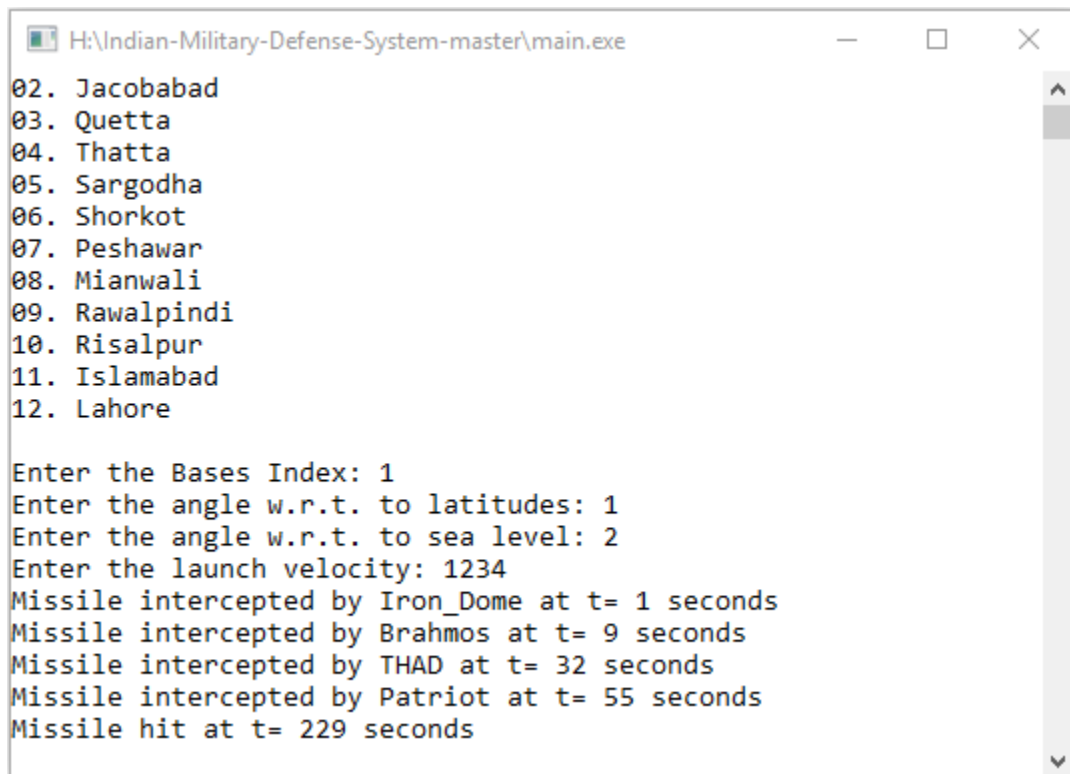
APPROACH

- Greedy approach
- Divide & Conquer approach
- Dynamic Programming

OUTPUTS



Menu



Missile Interception System

```
H:\Indian-Military-Defense-System-master\main.exe
Welcome to zone query! Enter:
1) To show troops between two zones.
2) To show all zones
3) To exit
2

Zone 1
AirForce_Station_Salua 8 560 8365

Zone 2
Ambala_Air_Force_Station 13 240 1748
Nal_Airport 14 63 8566
Uttarlai_Station 15 37 3000
Chushul 16 77 5648
Barrackpore_Station 19 130 3465

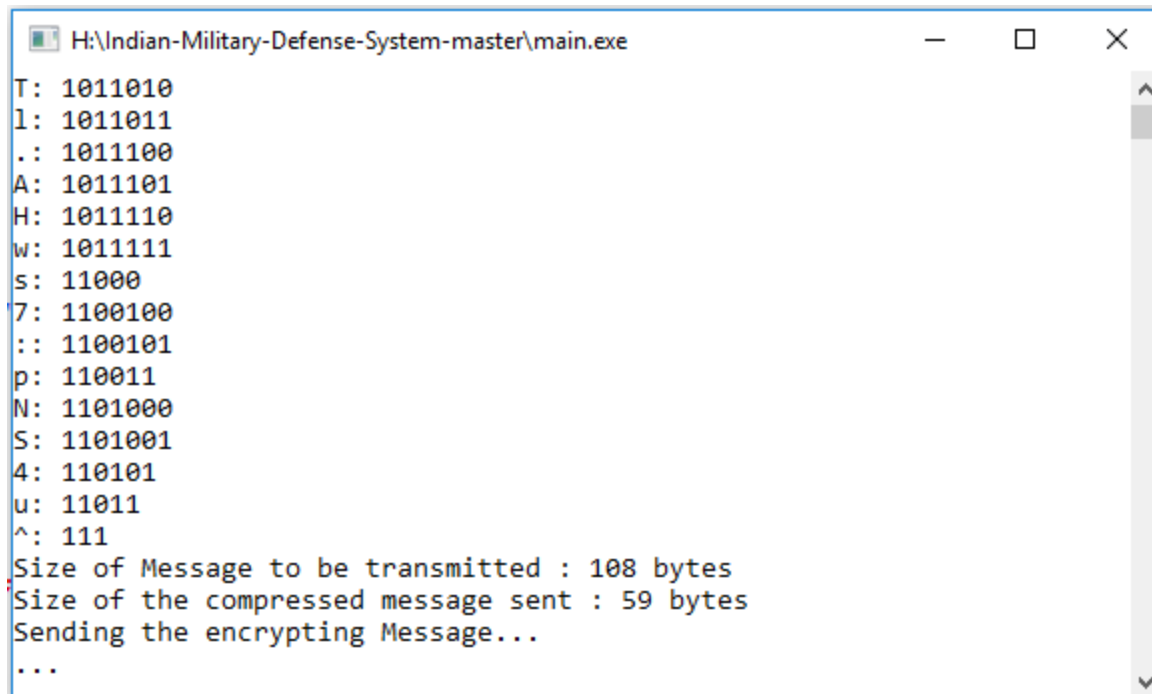
Zone 3
Bathinda_Airport 21 76.5 5859
Yelahanka_Station 22 73 9631
Adampur_Base 23 130.4 4657
Faizabad_Airport 24 75.7 5739
Lucknow_Station 25 72 8563
Farkhor_Air_Base 26 49 8663
Suratgarh_Station 27 83 2459
Bihta_Air_Force_Station 28 89 9887
```

Zone Queries

```
H:\Indian-Military-Defense-System-master\main.exe
Enter the maximum damage that can be done:
45
Total killed enemies are : 219

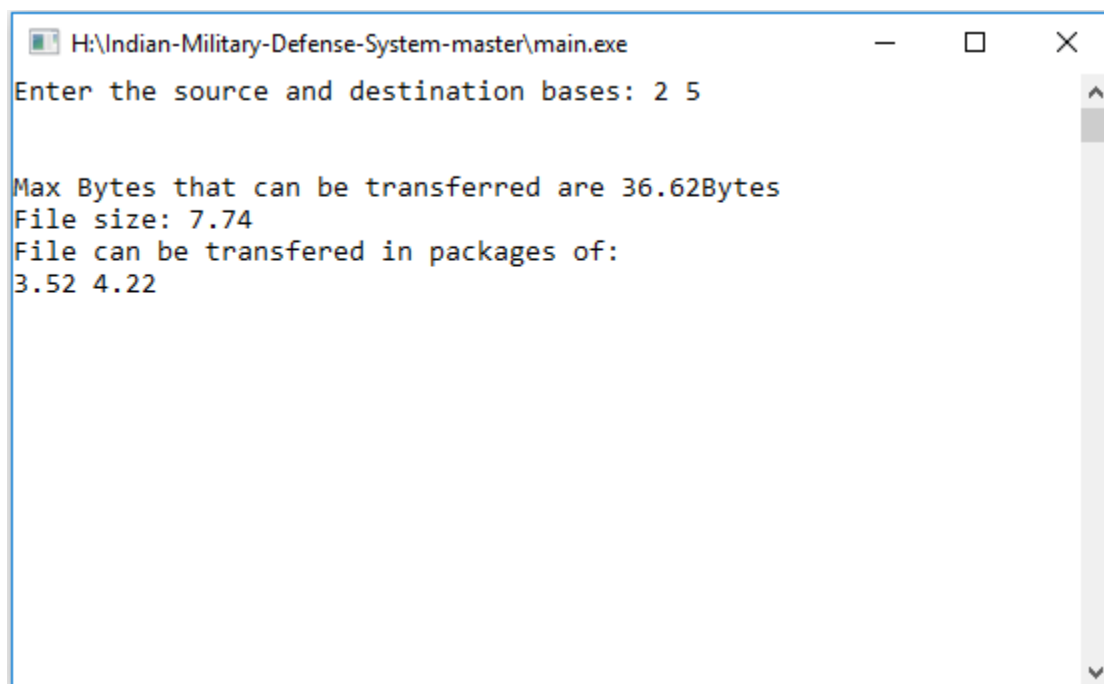
Bs. | Dm. | kill.
8 | 9 | 34
7 | 3 | 20
6 | 10 | 50
5 | 4 | 15
4 | 8 | 40
3 | 6 | 28
2 | 5 | 32
```

Important Enemy bases to capture



```
H:\Indian-Military-Defense-System-master\main.exe
T: 1011010
l: 1011011
.: 1011100
A: 1011101
H: 1011110
w: 1011111
s: 11000
7: 1100100
:: 1100101
p: 110011
N: 1101000
S: 1101001
4: 110101
u: 11011
^: 111
Size of Message to be transmitted : 108 bytes
Size of the compressed message sent : 59 bytes
Sending the encrypting Message...
...
```

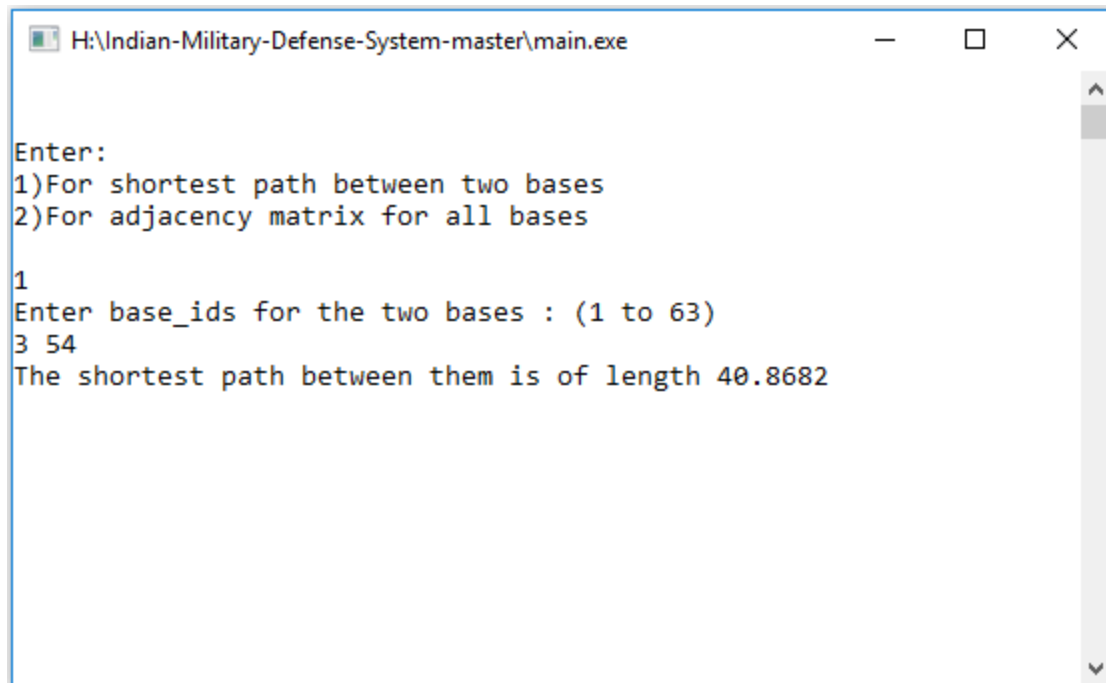
Message Encoding...



```
H:\Indian-Military-Defense-System-master\main.exe
Enter the source and destination bases: 2 5

Max Bytes that can be transferred are 36.62Bytes
File size: 7.74
File can be transfered in packages of:
3.52 4.22
```

Message sending in packages



```
H:\Indian-Military-Defense-System-master\main.exe

Enter:
1)For shortest path between two bases
2)For adjacency matrix for all bases

1
Enter base_ids for the two bases : (1 to 63)
3 54
The shortest path between them is of length 40.8682
```

Distance Between two Bases