

Project Report ICS Major Project

GAME: Stranded in Stars (Text-based Adventure game)

1. Introduction:

We have made a game in which the player is stuck in a malfunctioning spaceship near Alpha Centauri, where he has to perform a said set of tasks in different rooms of the spaceship, once they complete the task, that room turns green indicating they have successfully repaired that part of spaceship and are closer to home, even the entry to these rooms is not free of cost, you must complete entry games to enter the room, each task guarantees an addition to your resource bag along with gradual repair of the spaceship. The resources can be traded with aliens for potentially better ones. The greater your points, the closer you get to home.

2. Project Scope:

The project scope encompasses the development of "Stranded in Stars," a text-based adventure game set aboard a malfunctioning spaceship near Alpha Centauri. Players undertake tasks to repair the vessel, progressing through rooms gated by entry games. Leveraging core programming concepts like file handling, pointers, structures, arrays, and string manipulation, alongside ANSI values for color changes and the <windows.h> library for delays, the game offers an immersive experience. Challenges included code compilation and integration, with collaboration via GitHub, though technical constraints limited features like sound and symbols. The scope prioritizes delivering engaging gameplay and user-friendly interfaces.

3. Gameplay Mechanics:

The game is a space-themed adventure where the player is stranded on a malfunctioning spaceship near Alpha Centauri.

Players must navigate through different rooms of the spaceship, each presenting unique challenges and tasks to complete.

Tasks include repairing damaged systems, solving puzzles, and overcoming obstacles to progress.

Entry to each room is gated by entry games, adding an additional layer of challenge and strategy.

Successful completion of tasks results in gradual repair of the spaceship and progression towards the ultimate goal of returning home.

4. Implementation Details:

File handling: Utilized for storing and retrieving game data, including player progress, spaceship status, and room configurations.

Pointers: Employed for efficient memory management and manipulation of complex data structures.

Structures: Used to represent entities within the game, such as rooms, tasks, resources, etc., facilitating organized data management.

Arrays: Implemented for storing and managing collections of data, such as room statuses, player inventory, and game state.

String manipulation: Employed for processing and displaying textual information, handling user input, and managing in-game communication.

In addition to the mentioned technologies, the game also utilizes ANSI values for changing colors to enhance visual presentation. This feature, integrated with the <windows.h> library for implementing

delays using the sleep() function, contributes to the immersive experience by adding dynamic visual elements and controlled pacing to the gameplay.

5. User Interface:

We have included an interesting map , which helps user to visualize the game and we have made it in such a way that everything updates after the player completes a game or does a task .

In different games we have added a visual element to help the users feel like they are playing the real version of the text-based game.

Every time you win or lose, an interesting statement pops up which catches the eye of the player and grabs attention.

the player is provided with a clear set of rules written in interesting way which helps them navigate through the game easily.

6. Technical Challenges:

Compiling of the lengthy code was difficult and we faced many errors in integrating all the functions of so many games and it was especially hard as we faced difficulties in sharing of the lengthy code between three people and we used Github but we couldnt run the code in github , we could only share it but we had so many files making it difficult to include all .

We also wanted to add sound and different symbols for the game , but it was difficult as we all had Windows and not mac.

7. Conclusion:

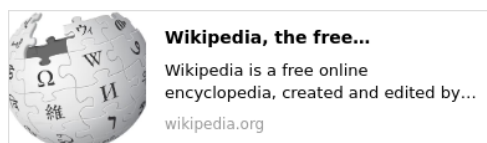
We hope you have as much fun playing the game as we had making it.

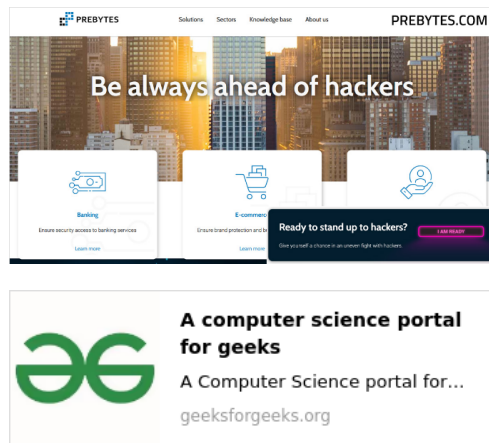
It was a fun experience, we had a great time and we got to learn how to work in teams and always look for the improvements and it also helped us bring out our creative sides.

8. References

Class notes

and few websites for colour change and additional information required:





9. Appendix :

The header files included in the main function are:

```
#include "anagram.h"
```

```
#include "frescorers.h"
```

```
#include "sliding.h"
```

```
#include "maze.h"
```

```
#include "battleship.h"
```

```
#include "biochem.h"
```

```
#include "mathquiz.h"
```

```
#include "trivia.h"
```

```
#include "riddle.h"
```

```
#include "hangman.h"
```

```
#include "medbay.h"
```

```
#include "RPSLSp.h"
```

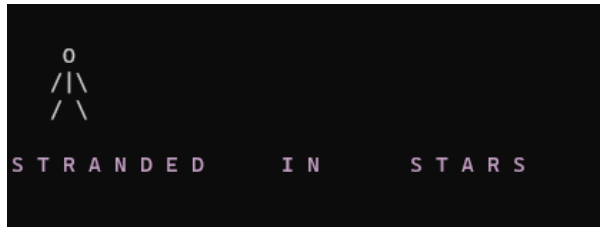
```
#include "encodeddecode.h"
```

```
#include "blackjack.h"
```

```
#include "connect4.h"
```

The terminal on running the code will look like:

intro to the game :



```
Each room presents a challenge,  
A test of skill and wit,  
But entry isn't free of cost:  
You must expend precious resources.  
  
Yet, with each task completed,  
Your resource bag swells,  
And the ship's systems inch closer to repair.  
  
But there's more to this journey than mere survival:  
Among the stars, you'll encounter beings unlike any you've known.  
Trade your hard-earned resources with aliens,  
Forge alliances in the silent void.  
  
With every task accomplished,  
Every trade negotiated,  
Your points tally grows,  
Drawing you ever closer to the promise of home.  
  
In Journey Home,  
The greater your points,  
The brighter the beacon guiding you through the darkness.  
Will you navigate the trials of space,  
Reclaim what was lost,  
And find your way back to the warmth of home?  
  
The stars await your decision.  
Your journey begins now.  
Press Enter to continue...  
|
```

This is the intro to the game. After clicking enter it will take you to the real game revealing the map and other elements of the game like resource bag and money bank .


```

Navigation Room:

Before entering the Navigation Room,
prepare yourself for a challenge:
You must decipher an encoded code
in the mysterious language of aliens.

Once inside, your task awaits:
A game of Battleship,
where strategy and precision will be your allies.

But beware:
This room holds peril,
a trap lurking in the darkness of space.
An asteroid swarm threatens the ship,
And a single misstep could mean certain death.

Navigate the stars with caution,
For your journey home hangs in the balance.
Press Enter to continue...

Navigation Room Entry Challenge: Decoding Alien Messages

Objective: Decode alien messages to unlock the Navigation Room. Your mission: decipher encoded words to reveal their Earthly counterparts.

Decryption Example: lpmo-moon Crack the code by recognizing patterns and logic in the alien language.

Your Task: Decrypt alien words based on provided Earthly hints. Input the decoded word to progress.

How to Proceed: Analyze the hint, decode the alien word, and submit your answer for evaluation.

```

Again read all the intros.. we have to decode alien language and hence write the code to enter navigation and then play battleship:

```

lpmo-moon
moon=>?
Pluto
Correct

Yay! You just won yourself 3 GalaxyBolds!

Navigation Room: Asteroid Detection Challenge

Objective: Safely navigate through the asteroid field by accurately detecting the hidden asteroids within a 4x4 grid.

Game Concept: Imagine yourself in the midst of a cosmic battlefield, where asteroids lurk unseen. Your mission is to reveal their locations before it's too late!

Game Mechanics: Utilize strategic guesses to uncover the hidden asteroids within the grid. Each correct guess brings you closer to safety.

Gameplay: You have a limited number of chances to reveal all asteroids. With each guess, the grid displays either a hit (asteroid found) or a miss (empty space).

Asteroid Detection: Pay attention to the grid layout and any patterns that may hint at asteroid locations. Use logical deduction to pinpoint their positions accurately.

Success Criteria: Successfully detect all asteroids within the allocated chances to navigate safely through the asteroid field.

Consequences of Failure: Failure to detect all asteroids within the given chances risks collision with the asteroids, endangering your journey through space.

Points System: Your score is determined by the number of remaining chances when you successfully navigate through the asteroid field. More chances left result in a higher score, with a maximum of 16 points for completing the challenge flawlessly.

```

```

Remaining chances: 4

  1 2 3 4
1  . . . .
2  . x . x
3  . . 0 x
4  . . . x
Enter row (1-4): 2
Enter column (1-4): 3
Miss!
|

```

Once winning the task the room turns green in the main map and now we can move to any of the other rooms and in this case we go to cargo:

```
cargo
```

Cargo Room:

Welcome to the Cargo Room,
A treasure trove of wonders from the depths of space.
Here, amidst the stars,
You'll find everything from Mummy's Gajar Halwa to long-lost twins.

But beware:
Nothing here is as it seems,
And every choice carries weight.
Out of 20 resources,
Choose wisely:
Select the 7 your instincts deem most valuable.

To gain entry, face the challenges:
A game of Connect 4,
A battle of strategy and foresight,
And riddles whispered by the great unknown.

For in space,
Even the mundane holds mystery,
And every decision shapes your journey home.

The entry game is a text based version of connect 4 read rules and play the game:

```

  1  2  3  4  5  6  7
Computer's turn...

|_ _|_ _|_ _|_ _|_ _|_ _|_ _| |
|_ _|_ _|_ _|_ _|_ _|_ _|_ _|
|_ _|_ _|_ _|_ _|_ _|_ _|_ _|
|_ _|_ _|_ _|_ _|_ _|_ _|_ _|
|_ _|X_|_ _|_ _|_ _|_ _|_ _|O_|
|_ _|X_|_ _|_ _|_ _|_ _|_ _|O_|
|X_|X_|X_|X_|O_|_ _|O_|O_|

-----
  1  2  3  4  5  6  7
Your turn. Enter column number (1-7): 3

|_ _|_ _|_ _|_ _|_ _|_ _|_ _| |
|_ _|_ _|_ _|_ _|_ _|_ _|_ _|
|_ _|_ _|_ _|_ _|_ _|_ _|_ _|
|_ _|X_|_ _|_ _|_ _|_ _|_ _|O_|
|_ _|X_|X_|_ _|_ _|_ _|_ _|O_|
|X_|X_|X_|X_|O_|_ _|O_|O_|

-----
  1  2  3  4  5  6  7
Computer's turn...

|_ _|_ _|_ _|_ _|_ _|_ _|_ _| |
|_ _|_ _|_ _|_ _|_ _|_ _|_ _|
|_ _|_ _|_ _|_ _|_ _|_ _|_ _|
|_ _|X_|_ _|_ _|_ _|_ _|_ _|O_|
|_ _|X_|X_|_ _|_ _|_ _|_ _|O_|
|X_|X_|X_|X_|O_|_ _|O_|O_|

-----
  1  2  3  4  5  6  7
Your turn. Enter column number (1-7):

```

Next comes a list of interesting objects, 20 to be precise, out of which the player can have 7 in their resource bag.

```

- | . | X | - | - | - | - | - | - | 0 |
- | 0 | - | X | - | - | - | - | - | - | 0 |
- | X | - | X | - | 0 | - | - | 0 | - | 0 |
=====
1 2 3 4 5 6 7
Congratulations! You win!

Yayy! You just won yourself 3 GalaxyGolds!

1) bitcoin
2) space rocks
3) ancient coins
4) energy crystals
5) alien baby
6) dino egg
7) dragon scales
8) moras
9) headphones
10) ostrich feather
11) mystery
12) mom's pajar Ka halwa
13) long-lost twin
14) b'day cap
15) milky bar
16) invisibility cloak
17) bucket
18) adhar card
19) blood
20) calculator
=====
Enter the serial number corresponding to the resource you want to pick up: |

```

On selecting the resources, they get added to your resource bag:


```
RESOURCE BAG:
13) long-lost twin
13) long-lost twin
12) mom's gajar ka halwa
19) blood
10) ostrich feather
5) alien baby
```

The next room for this demonstration will be Communications by typing comms , so that we can communicate with the aliens and trade all resources with the aliens in order to increase your overall points .

```
Enter the room that you wish to visit:
comms

Comms Room:

Prepare to enter the Comms Room,
The lifeline connecting you to the vast expanse of space.
Here lies the opportunity to trade,
To barter your resources for potential treasures.

To enter, solve the sliding numeric puzzle,
A test of your spatial reasoning and wit.
Success rewards you with guaranteed points,
A step closer to the warmth of home.

But beware:
Trading is an art,
And not all deals are fair.
Attempt to trade an item of significantly lesser value,
And the trade will crumble to dust.

You have but three chances to trade,
Choose wisely,
For your fate hangs in the balance of cosmic commerce.
```

The entry game is a numeric sliding game:

```
1 2 3
4 5 6
7 8

Number of moves: 42

Yayy! You just won yourself 5 GalaxyGolds!
```

the alien's resource list will be shown in which we have to guess if the item we are trading will be of enough value to trade with alien if not it will result in Unfair trade else it will be a fair trade and hence will acquire the traded resource list.

```
) patthar
) ped
) achaar
) laptop
) blowtorch
) mankind destruction code
) Dennis Richie
) Rudolf
) Spaceship fuel
9) Holographic projector
1) Navigation charts
2) Time turner
3) neural interface technology
4) constellations chart
5) lamborghini
6) cute shades
7) nani's morni
8) Donald Trump
9) snake(python)
8) puppy
=====
the serial number corresponding to the resource you want to acquire to trade against 13) long-lost twin |
```

```
Enter the serial number corresponding to the resource you want to acquire to trade against 13) long-lost twin 18
Fair trade
```

```
the serial number corresponding to the resource you want to acquire to trade against 5) alien baby 20
Unfair trade
Looks like the universe just pulled a 'Bazinga' on you. Time to laugh it off and try again!
```

after this , the updated screen will be :

```

Required vit Pro Carb Cal Diamond Gold Silver
Your 0 0 0 0 3 36 50

#####
#                                     #
# [CARGO] [E1]                       #
# [COMMS] [LOUNGE] [N] [A]           #
# [ENG] [M] [E] [V] [LIB]           #
# [MESS] [D] [E2]                   #
#####

RESOURCE BAG:
13) long-lost twin
18) Donald Trump
1) patthar
19) blood
13) neural interface technology
5) alien baby
14) b'day cap

Enter the room that you wish to visit:

```

The next room we go to is MESS:

```

Welcome to the Mess,
Where even among the stars,
Hunger knows no bounds.

To enter, play Rock Paper Scissors Lizard Spock,
And the doors will open wide.

Inside, nourishment awaits,
But it comes at a cost.
Galaxy gold, Stellar silver, Diamond dust,
Earned through your victories in space games.

Choose wisely,
For sustenance fuels not just the body,
But the journey homeward.

Rock, Paper, Scissors, Lizard, Spock Game Rules:

Welcome to the Ultimate Showdown: Prepare for an epic battle of wits and strategy in the legendary game of Rock, Paper, Scissors, Lizard, Spock!

The Rules of Engagement:
Scissors cuts paper,
Paper covers rock,
Rock crushes lizard,
Lizard poisons Spock,
Spock smashes scissors,
Scissors decapitates lizard,
Lizard eats paper,
Paper disproves Spock,
Spock vaporizes rock,
And as it always has, rock crushes scissors.

```

The player has to play a game of Rock, Paper, Scissor, Lizard, Spock as entry game and then continue with mess and eat all the food based on the required nutritional values and based on the amount you have .

```

Required vit Pro Carb Cal Diamond Gold Silver
Your 120 180 110 150 0 4 0

S.No. Food Price Nutrient
Vit Pro Carb Cal
1 Apple 10 100 0 0 0
2 Cake 20 0 0 0 150
3 Pizza 50 0 0 120 0
4 Shimla mirch 20 80 0 0 0
5 Kachori 15 0 0 0 40
6 Kaju Matli 50 0 0 50 0
7 Salad 50 0 100 0 0
8 Mango Shake 200 20 20 20 20
9 Eggs 15 0 80 0 0
10 Milk 20 0 50 0 0

Enter the serial number of food item that you would like to buy: 8
Enter the quantity: 1
Insufficient money!!

```

Once you have completed all nutritional requirements , the mess room will turn green :

```

NUTRIENTS vit Pro Carb Cal DIAMOND
Required 120 180 110 150 0
Your 140 220 140 290 2 5

Nutrient requirement completed!!

#####
#                                     #
# [CARGO] [E1]                       #
# [COMMS] [LOUNGE] [N] [A]           #
# [ENG] [M] [E] [V] [LIB]           #
# [MESS] [D] [E2]                   #
#####

RESOURCE BAG:
13) long-lost twin
18) Donald Trump
1) patthar
19) blood
13) neural interface technology
5) alien baby
14) b'day cap

Enter the room that you wish to visit:

```

There there will be an introduction to the room and instructions of what to do. Then we have to play the entry game which is a trivia.

```
b) earthworms
c) dogs
b
Wrong! now you know why you weren't there!
```

[UNLABELLED]

one of the result in one of the choices is a bonus games which can help acquire more points to reach home :

```

Welcome to the High or Low game!
Guess if the next card will be higher or lower than the current card.
Current card: 5
Will the next card be higher (h) or lower (l)? h
Next card: 6
Correct!

Current card: 12
Will the next card be higher (h) or lower (l)? l
Next card: 6
Correct!

Current card: 2
Will the next card be higher (h) or lower (l)? h
Next card: 13
Correct!

Game over!
Total guesses: 3
Correct guesses: 3
Accuracy: 100.00%
You get 5 GalaxyGold

```

After completing Medbay, we go to engine by typing eng :

```

Enter the room that you wish to visit:
eng

Engine Room:

Prepare yourself for the Engine Room,
But first, navigate the maze at the entrance:
A labyrinth of twists and turns,
Where finding the way out is your first challenge.

Once inside, the true test begins:
A game of Blackjack with an alien opponent,
Where the stakes are high and the outcome uncertain.

But beware:
Lose the game,
And face the consequences:
The alien's appetite knows no bounds,
And you'll lose one precious life.

Proceed with caution,
For survival in the depths of space
Demands both skill and luck.
Press Enter to continue...

Welcome to Blackjack with an Alien! Your task in the Engine Room is to beat the alien dealer in a game of Blackjack.

The objective is simple: Beat the dealer's hand without exceeding a total card value of 21.

You'll start with two cards, facing off against the alien who reveals one of their cards.

During your turn, choose whether to "hit" (take another card) or "stand" (stop drawing cards) strategically.

```

Clear the maze to enter the Engine :

```

. . . . . *
| | | . | | |
. . . . | . .
| | . | | | |
. | . . . @
. | | | | .
. . . . .

Enter your move (w: up, s: down, a: left, d: right, q: quit): w
NO more space left
|

```

After clearing the maze , the task is Blackjack.

```

. . . . . @
| | | . | | |
. . . . | . .
| | . | | | |
. | . . . . .
. | | | | | .
. . . . . .

Congratulations! You reached the last point!
Welcome to Blackjack!

Player's initial hand:
Hand: 8 10
Dealer's initial hand:
3 ?
Hit (h) or Stand (s)? |
```

Once we have completed all the games and cleared all the rooms :

```

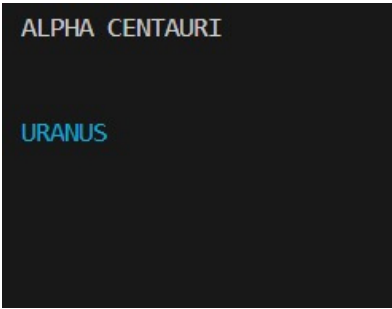
NUTRIENTS
vit    Pro    Carb  Cal
Required 120    180    110    150
Your     140    220    140    290

MONEY
Diamond Gold Silver
8        32    5

Nutrient requirement completed!!
#####
#                                     #
#  [CARGO] [E1]                      #
#  [COMMS] [LOUNGE] [N A V]          #
#  [ENG]   [M E D] [LIB] [E2]       #
#  [MESS]                                     #
#                                     #
#####
Enter the room that you wish to visit:

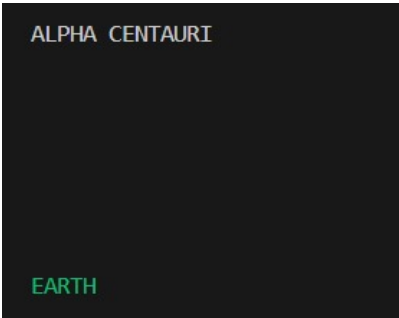
RESOURCE BAG:
13) long-lost twin
18) Donald Trump
17) patthar
19) blood
11) neural interface technology
5) alien baby
14) b'day cap
```

The player has to go to escape rooms e1&e2 by typing esc where they can see their points and finally go away from Alpha Centauri and closer to home.



if you have less points you reach a planet accordingly.

Good points can take you to earth



else you may have to sink into the unknown

ALPHA CENTAURI

BLACK HOLE

NOTE: the player can go to escape rooms at any point in the game when the player gets the chance to select room but doing this is risky as the player may never go back to home again.