**Description:**

This project is a simple database for space missions. It allows user to add, remove, search, and display missions. The data is stored in a file called "missions.txt". The user can save changes to the file before quitting the program. The program uses a struct to store mission data and a few functions to interact with the data. The program also includes a few helper functions to validate user input and clear the input buffer. The program is menu-driven and uses a loop to keep running while the user chooses to remove, add, search or display missions until the user chooses to quit.

**Sample Run:**

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| --- |
| --------- SPACE MISSION DATABASE ---------  1. Display all missions  2. Add a new mission  3. Find a mission  4. Remove a mission  5. Save changes  6. Quit  Enter your choice (1-6): 1  MISSION DATABASE:  -----------------------------------------------------------------------------------------  Name Launch Site Rocket Type Cost Status  -----------------------------------------------------------------------------------------  SpaceX LC-39A, USA Falcon 9 50.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  SpaceX Pad A-Boca Chica, USA Starship Prototype 0.00 Success  Roscosmos Site 200/39, Kazakhstan Proton-M/Briz-M 65.00 Success  ULA SLC-41, USA Atlas V 541 145.00 Success  CASC LC-9, China Long March 4B 64.68 Success  Roscosmos Site 31/6, Kazakhstan Soyuz 2.1a 48.50 Success  CASC LC-101, China Long March 5 0.00 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  JAXA LA-Y1, Japan H-IIA 202 90.00 Success  Northrop LP-0B, USA Minotaur IV 46.00 Success  ExPace Site 95, China Kuaizhou 11 28.30 Failure  CASC LC-3, China Long March 3B/E 29.15 Success  IAI Pad 1, Israel Shavit-2 0.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  Rocket Lab Rocket Lab LC-1A, New Zealand Electron/Curie 7.50 Failure  CASC LC-9, China Long March 4B 64.68 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  CASC LC-2, China Long March 3B/E 29.15 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  Rocket Lab Rocket Lab LC-1A, New Zealand Electron/Curie 7.50 Success  CASC LC-9, China Long March 2C 30.80 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  --------- SPACE MISSION DATABASE ---------  1. Display all missions  2. Add a new mission  3. Find a mission  4. Remove a mission  5. Save changes  6. Quit  Enter your choice (1-6): 2  Enter mission name: MHI  Enter launch site: LA-Y2,Japan^[[D^[[D^[[D^  Enter rocket type: H-II  Enter mission cost: 112.5  Enter mission status (Success/Failure): Success  Mission added successfully!  --------- SPACE MISSION DATABASE ---------  1. Display all missions  2. Add a new mission  3. Find a mission  4. Remove a mission  5. Save changes  6. Quit  Enter your choice (1-6): 1  MISSION DATABASE:  -----------------------------------------------------------------------------------------  Name Launch Site Rocket Type Cost Status  -----------------------------------------------------------------------------------------  SpaceX LC-39A, USA Falcon 9 50.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  SpaceX Pad A-Boca Chica, USA Starship Prototype 0.00 Success  Roscosmos Site 200/39, Kazakhstan Proton-M/Briz-M 65.00 Success  ULA SLC-41, USA Atlas V 541 145.00 Success  CASC LC-9, China Long March 4B 64.68 Success  Roscosmos Site 31/6, Kazakhstan Soyuz 2.1a 48.50 Success  CASC LC-101, China Long March 5 0.00 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  JAXA LA-Y1, Japan H-IIA 202 90.00 Success  Northrop LP-0B, USA Minotaur IV 46.00 Success  ExPace Site 95, China Kuaizhou 11 28.30 Failure  CASC LC-3, China Long March 3B/E 29.15 Success  IAI Pad 1, Israel Shavit-2 0.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  Rocket Lab Rocket Lab LC-1A, New Zealand Electron/Curie 7.50 Failure  CASC LC-9, China Long March 4B 64.68 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  CASC LC-2, China Long March 3B/E 29.15 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  Rocket Lab Rocket Lab LC-1A, New Zealand Electron/Curie 7.50 Success  CASC LC-9, China Long March 2C 30.80 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  MHI L H-II 112.50 Success  --------- SPACE MISSION DATABASE ---------  1. Display all missions  2. Add a new mission  3. Find a mission  4. Remove a mission  5. Save changes  6. Quit  Enter your choice (1-6): 4  Enter mission name to remove: MHI  Mission "MHI" removed successfully!  --------- SPACE MISSION DATABASE ---------  1. Display all missions  2. Add a new mission  3. Find a mission  4. Remove a mission  5. Save changes  6. Quit  Enter your choice (1-6): 1  MISSION DATABASE:  -----------------------------------------------------------------------------------------  Name Launch Site Rocket Type Cost Status  -----------------------------------------------------------------------------------------  SpaceX LC-39A, USA Falcon 9 50.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  SpaceX Pad A-Boca Chica, USA Starship Prototype 0.00 Success  Roscosmos Site 200/39, Kazakhstan Proton-M/Briz-M 65.00 Success  ULA SLC-41, USA Atlas V 541 145.00 Success  CASC LC-9, China Long March 4B 64.68 Success  Roscosmos Site 31/6, Kazakhstan Soyuz 2.1a 48.50 Success  CASC LC-101, China Long March 5 0.00 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  JAXA LA-Y1, Japan H-IIA 202 90.00 Success  Northrop LP-0B, USA Minotaur IV 46.00 Success  ExPace Site 95, China Kuaizhou 11 28.30 Failure  CASC LC-3, China Long March 3B/E 29.15 Success  IAI Pad 1, Israel Shavit-2 0.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  Rocket Lab Rocket Lab LC-1A, New Zealand Electron/Curie 7.50 Failure  CASC LC-9, China Long March 4B 64.68 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  CASC LC-2, China Long March 3B/E 29.15 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  Rocket Lab Rocket Lab LC-1A, New Zealand Electron/Curie 7.50 Success  CASC LC-9, China Long March 2C 30.80 Success  SpaceX SLC-40, USA Falcon 9 50.00 Success  CASC Site 9401 (SLS-2), China Long March 2D 29.75 Success  --------- SPACE MISSION DATABASE ---------  1. Display all missions  2. Add a new mission  3. Find a mission  4. Remove a mission  5. Save changes  6. Quit  Enter your choice (1-6): 5  Database saved successfully!  --------- SPACE MISSION DATABASE ---------  1. Display all missions  2. Add a new mission  3. Find a mission  4. Remove a mission  5. Save changes  6. Quit  Enter your choice (1-6): 6  Thank you for using the Space Mission Database. Goodbye! |

**Struct Mission**

Data Members:

1. char name[50] to hold the mission company name
2. char launchSite[100] to hold where the rocket was launched
3. char rocketType[100] to hold the type of rocket type
4. double cost to hold the launch cost
5. char status[20] to hold whether the launch was a success or a fail

**Main Program:**

1. The program reads the contents of the file using the loadMissions() function.
2. It then displays the menu and menu information

**Display the menu(displayMenu):**

**Load missions from file(loadMissions):**

**Save missions into file(saveMissions):**

**Display missions from file(displayMissions):**

**Add a mission into file(addMission):**

**Find a mission from file(findMissions):**

**Remove a mission from file(removeMission):**

**Validity of choice check(isValidChoice):**

**Clear buffer from all input(clearInputBuffer):**