

Output:
(Sample run of program)

Header when starting program:

```
Program: Flow Stuides - Fall 2022  
Version: 1.0  
Produced By: Harris Hasnain  
  
<<< Press Enter to Continue >>>
```

Menu that appears when user presses "Enter":

```
Please select one of the following operations:  
1. Display flow list, and the average flow.  
2. Add data.  
3. Save data into the file.  
4. Remove data.  
5. Quit.  
Enter your choice (1, 2, 3, 4 or 5):  
|
```

User chooses option 1 (display):

```
Enter your choice (1, 2, 3, 4 or 5):  
1  
  
Year:   Flow (in billions of cubic meters):  
1900    220.11  
1901    210.11  
1922    192.99  
1945    145.66  
1946    300.99  
1947    310.99  
1970    100.34  
1971    209.99  
1972    219.99  
1989    234.98  
1990    214.98  
1999    110.99  
2000    110.22  
2001    231.44  
2002    211.44  
  
The annual average of the flow is: 201 billion cubic meters.  
  
<<< Press Enter to Continue >>>
```

User presses "Enter" again, loops back to choice menu:

```
Please select one of the following operations:  
1. Display flow list, and the average flow.  
2. Add data.  
3. Save data into the file.  
4. Remove data.  
5. Quit.  
Enter your choice (1, 2, 3, 4 or 5):
```

User chooses option 2 (add data), however the year chosen already has a record in the set:

```
Enter your choice (1, 2, 3, 4 or 5):  
2  
  
Enter the year of the new data:  
2002  
Enter the flow of the new data:  
200.10  
Error: Data record already exists in the set.  
  
<<< Press Enter to Continue >>>
```

User chooses option 2 (add data), and provides data for a new year that does not already exist in the set:

```
Enter your choice (1, 2, 3, 4 or 5):  
2  
  
Enter the year of the new data:  
2020  
Enter the flow of the new data:  
200.20  
New data record successfully inserted.  
  
<<< Press Enter to Continue >>>  
|
```

User chooses option 4 (remove data), however the year chosen does not have a record in the set:

```
Enter your choice (1, 2, 3, 4 or 5):  
4  
  
Enter the year of the data to be removed:  
2010  
Error: Data record does not exist in the set.  
  
<<< Press Enter to Continue >>>
```

User chooses option 4 (remove data), and the year chosen does have a record in the set:

```
Enter your choice (1, 2, 3, 4 or 5):  
4  
  
Enter the year of the data to be removed:  
1901  
Data record successfully removed.  
  
<<< Press Enter to Continue >>>
```

User chooses option 1 (display), this time for the modified set after the above additions / removals:

```
Enter your choice (1, 2, 3, 4 or 5):
1

Year:  Flow (in billions of cubic meters):
1900    220.11
1922    192.99
1945    145.66
1946    300.99
1947    310.99
1970    100.34
1971    209.99
1972    219.99
1989    234.98
1990    214.98
1999    110.99
2000    110.22
2001    231.44
2002    211.44
2020    200.2

The annual average of the flow is: 200 billion cubic meters.

<<< Press Enter to Continue >>>
|
```

User chooses option 3 (save data into file), and saves the new modified set into the flow.txt file:

```
Enter your choice (1, 2, 3, 4 or 5):
3

Data successfully saved into the file.

<<< Press Enter to Continue >>>
```

Modified Flow.txt file containing the set above, after the user saved the set into the file:

|  Flow 2 >  Flow >  flow > No Selection | | |
|---|------|--------|
| 1 | 1900 | 220.11 |
| 2 | 1922 | 192.99 |
| 3 | 1945 | 145.66 |
| 4 | 1946 | 300.99 |
| 5 | 1947 | 310.99 |
| 6 | 1970 | 100.34 |
| 7 | 1971 | 209.99 |
| 8 | 1972 | 219.99 |
| 9 | 1989 | 234.98 |
| 10 | 1990 | 214.98 |
| 11 | 1999 | 110.99 |
| 12 | 2000 | 110.22 |
| 13 | 2001 | 231.44 |
| 14 | 2002 | 211.44 |
| 15 | 2020 | 200.2 |
| 16 | | |

User chooses an invalid choice, program prompts for re-entry until a valid choice is provided:

```
Enter your choice (1, 2, 3, 4 or 5):
```

```
6
```

```
Invalid choice. Please try again.
```

```
<<< Press Enter to Continue >>>
```

User chooses option 5 (quit program), which causes the program to terminate:

```
Enter your choice (1, 2, 3, 4 or 5):
```

```
5
```

```
Program terminated successfully.
```

```
Program ended with exit code: 0|
```