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Data Structures and Algorithm II Project 4

User's Manual

Setup and Compilation

1. **Download and Unzip Submission**
    - Download and unzip the canvas submission.
    - The submission will include the following files:
        - `input-value.hpp`
        - `input-value.cpp`
        - `bin.hpp`
        - `bin.cpp`
        - `offline-bin-problem.hpp`
        - `offline-bin-problem.cpp`
        - `online-bin-problem.hpp`
        - `online-bin-problem.cpp`
        - `main.cpp`
        - `items.txt`
        - Makefile
        - UML
        - Test folder containing:
            - `test/bin-test.cpp`
            - `test/input-value-test.cpp`
            - `test/offline-bin-problem-test.cpp`
            - `test/online-bin-problem-test.cpp`
2. **Environment**
    - This program has been tested in a multiplatform lab and is compatible with various systems.
3. **Compiling**
    - The project includes a Makefile to facilitate the build process. Use the following commands:
        - To run tests:
            - `make run-test`
        - To run the main program:
            - `make run-main`

        - To clean the directory:
            - `make clean`
        -

4. **Running the Program**
    - Ensure that all `-test` files are located in the `test` folder.
    - All `.hpp`, `.cpp` files should be outside of the `test` folder.
    - The program requires user interaction to input values.
5. **Input Prompt**

   NO INPUT AVAILABLE

6. **Output**

The output will be displayed in the console, similar to the following format:

```
Working...

  Policy          | Total Bins |
Online Algorithm  |            |
First Fit         | 6          |
Next Fit          | 7          |
Best Fit          | 6          |
Offline Algorithm |            |
First Fit         | 6          |
Best Fit          | 6          |
Optimal Bins      | 6          |

Online First Fit Values:
b0: 0.410000 0.340000 0.245000
b1: 0.590000 0.220000 0.190000
b2: 0.755000
b3: 0.510000 0.330000
b4: 0.370000 0.339000
b5: 0.810000

Online Next Fit Values:
b0: 0.410000 0.340000 0.245000
b1: 0.590000 0.190000
b2: 0.755000
b3: 0.330000 0.220000
b4: 0.510000 0.339000
b5: 0.810000
b6: 0.370000

Online Best Fit Values:
b0: 0.410000 0.340000 0.245000
b1: 0.590000 0.220000 0.190000
```

```
b2: 0.755000
b3: 0.510000 0.330000
b4: 0.370000 0.339000
b5: 0.810000

Offline First Fit Values:
b0: 0.410000 0.330000 0.190000
b1: 0.590000 0.220000
b2: 0.370000 0.340000 0.245000
b3: 0.810000
b4: 0.510000 0.339000
b5: 0.755000

Offline Best Fit Values:
b0: 0.330000 0.245000 0.220000 0.190000
b1: 0.590000 0.410000
b2: 0.810000
b3: 0.510000 0.340000
b4: 0.370000 0.339000
b5: 0.755000
```

Additional Notes

- Make sure to have the necessary development tools installed to compile the code, such as a C++ compiler (like g++).
- If you encounter any errors during compilation or execution, verify that all files are in the correct directories and properly named.
- For any questions or feedback regarding the project, please feel free to reach out!