**MowTime Program**

**Problem Statement:**

A program is required to read from the screen the length

and width of a rectangular house block, and the length and width of the

rectangular house that has been built on the block. The algorithm should then

compute and display the mowing time required to cut the grass around the house,

at the rate of two square meters per minute. Display all inputs and outputs to the console.

**Defining Diagram (IPO Chart):**

|  |  |  |
| --- | --- | --- |
| **Input** | **Process** | **Output** |
| * int:blockLen * int:blockWidth * int:houseLen * int:houseWidth | * blockLen \* blockWidth = blockArea * houseLen \* houseWidth = houseArea * mowingArea = blockArea - houseArea * mowingTime = mowingArea / 2 | * mowingTime |

**Solution Algorithm (Pseudocode):**

**MowTime**

**DECLARE int variables:** blockLen, blockWidth, houseLen, houseWidth, blockArea, houseArea, mowingArea;

**DECLARE double variables:** mowingTime, mowingHours;

**PRINT** asking for blockLen;

**GET** blockLen;

**PRINT** asking for blockWidth;

**GET** blockWidth;

**PRINT** asking for houseLen;

**GET** houseLen;

**PRINT** asking for houseWidth;

**GET** houseWidth;

**CALCULATE** blockArea, blockArea = blockLen \* blockWidth;

**CALCULATE** houseArea, houseArea= houseLen\* houseWidth;

**CALCULATE** mowingArea, mowingArea = blockArea - houseArea;

**CALCULATE** mowingTime, mowingTime = mowingArea / 2;

**PRINT** mowingTime to user's screen

**END**

**Desk Checking:**

**Choose Data Set:**

|  |  |  |
| --- | --- | --- |
| **Identifiers** | **First Data Set** | **Second Data Set** |
| blockLen | null | given int |
| blockWidth | null | given int |
| houseLen | null | given int |
| houseWidth | null | given int |

**Expected Results Table:**

|  |  |  |
| --- | --- | --- |
|  | **First Data Set** | **Second Data Set** |
| mowingTime | null | calculated double |

**Algorithm Walkthrough:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Statements** | **Block**  **Len** | **Block**  **Width** | **House**  **Len** | **House**  **Width** | **Block**  **Area** | **House**  **Area** | **Mowing Area** | **Mowing**  **Time** |
| **First Pass** | | | |  |  |  |  |  |
| Prompt-Get blockLen, blockWidth | X | X |  |  |  |  |  |  |
| Calculate blockArea | X | X |  |  | X |  |  |  |
| Prompt-Get houseLen, houseWidth |  |  | X | X |  |  |  |  |
| Calculate houseArea |  |  | X | X |  | X |  |  |
| Calculate  MowingArea |  |  |  |  | X | X | X |  |
| Calculate MowingTime |  |  |  |  |  |  | X | X |
| Ouput Displayed Correctly |  |  |  |  |  |  |  | X |
| **Second Pass** | | | | | | | | |
| Prompt-Get blockLen, blockWidth | X | X |  |  |  |  |  |  |
| Calculate blockArea | X | X |  |  | X |  |  |  |
| Prompt-Get houseLen, houseWidth |  |  | X | X |  |  |  |  |
| Calculate houseArea |  |  | X | X |  | X |  |  |
| Calculate  MowingArea |  |  |  |  | X | X | X |  |
| Calculate MowingTime |  |  |  |  |  |  | X | X |
| Ouput Displayed Correctly |  |  |  |  |  |  |  | X |

**Next Steps are to:** Code the application in Dev C++, Compile, Debug if necessary, Re-compile if necessary and Run.