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| **Assignment:** | PS 09 |
| **Name:** | Harith Kolaganti, hkolagan@purdue.edu |
| **Team-ID** | 005-12 |

# Reynolds Number

Paired Programming

**Paired Partner**

|  |  |
| --- | --- |
| Partner: | Tyler Huter, thuter@purdue.edu |

**Test Cases**

Fill out the table with test case information.

* The *Test Case Description* is an English description of the path being tested and the variable value(s) needed to be on that path.
* The *Input Arguments* are numerical values.
* The *Flowchart Output* is an English description of the flowchart output; it is not code or MATLAB generated results.
* Add as many rows as necessary to test all possible flowchart paths.
* An example test case is included.

|  |  |  |
| --- | --- | --- |
| **Test Case Description**  **in English** | **Test Values** ( | **Flowchart Output** |
| Test the validity of the density input by using an invalid density value  All other inputs are valid | = 0.1  = 1  = 0.1  = 1 | Error: invalid density |
| Test the validity of the velocity input by using an invalid velocity value  Test the validity of the diameter input by using an invalid diameter value  All other inputs are valid | = 0.5  = 11  = 0.01  = 1 | Error: invalid velocity |
| Test the validity of the diameter input by using an invalid diameter value  Test the validity of the diameter input by using an invalid diameter value  All other inputs are valid | = 0.5  = 1  = 0.03  = 1 | Error: invalid diameter |
| Test the validity of the viscosity input by using an invalid viscosity value  Test the validity of the diameter input by using an invalid diameter value  All other inputs are valid | = 0.5  = 1  = 0.01  = 26 | Error: invalid viscosity |
| All valid inputs to produce a laminar type | = 0.5  = 1  = 0.05  = 25 | Flow type: laminar |
| All valid inputs to produce a turbulent type | = 1500  = 10  = 0.2  = 0.001 | Flow type: turbulent |
| All valid inputs to produce a transitional type | = 75  = 5  = 0.07  = 0.01 | Flow type: transitional |

# US Standard Atmosphere, 1976

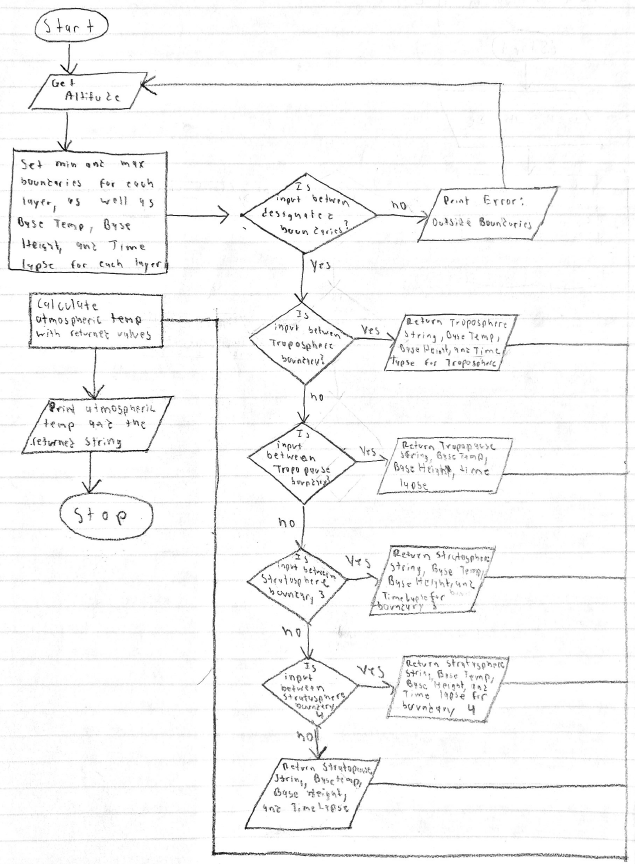
Paired Flowchart Creation

Individual Programming

**Paired Partner (Flowchart Only)**

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| --- | --- |
| Partner: | Tyler Huter, thuter@purdue.edu |

**PS09\_atm\_temp\_login.m Flowchart**



**Test Cases**

Fill out the table with test case information.

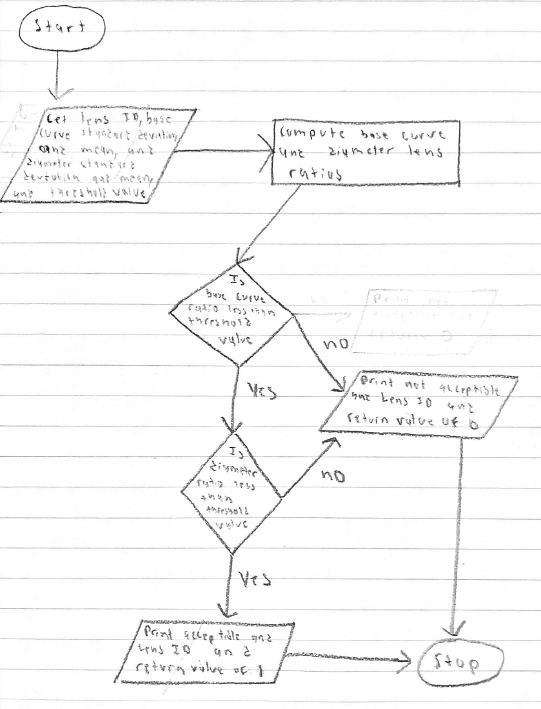
* The *Test Case Description* is an English description what is being tested.
* The *Input Argument* is a numerical value.
* The *Flowchart Output* is an English description of the flowchart; it should not be code or numbers.
* Add as many rows as necessary to test all possible flowchart paths.
* An example test case is included.

|  |  |  |
| --- | --- | --- |
| **Test Case Description**  **in English** | **Input Argument**  **(altitude (km))** | **Flowchart Output**  **in English** |
| Test when altitude is valid and in the troposphere  0 ≤ h < 11 | h = 10 | Calculated Temperature  Atmospheric layer: troposphere |
| Test when altitude is valid and in the tropopause  11 ≤ h < 20 | h = 19 | Calculated Temperature  Atmospheric layer: tropopause |
| Test when altitude is valid and in the stratosphere boundary 3  20 ≤ h < 32 | h = 30 | Calculated Temperature  Atmospheric layer: stratosphere boundary 3 |
| Test when altitude is valid and in the stratosphere boundary 4  32 ≤ h < 47 | h = 34 | Calculated Temperature  Atmospheric layer: stratosphere boundary 4 |
| Test when altitude is valid and in the stratopause  47 ≤ h < 51 | h = 50 | Calculated Temperature  Atmospheric layer: stratopause |
| Test when altitude is invalid if h is below the minimum boundary  h < 0 | h = -1 | Outside Boundaries |
| Test when altitude is invalid if h is above the maximum boundary  h > 51 | h = 52 | Outside Boundaries |

# Contact Lens Decision

Individual Programming

**(2.a) Flowchart**

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