# Assignment 5

Before attempting this project, be sure you have completed all of the reading assignments, non-graded exercises, discussions, and assignments to date.

**Write a Java program as follows:**
(1) Prompt the user which action they want to take:
       (a) Convert cubic feet to U.S. bushels
       (b) Convert miles to kilometers
       (c) Determine graduation with honors title
       (d) Exit program
(2) Programs at a minimum must have the following methods:
       (a) Convert square feet method gets square feet and returns cubic yards
       (b) Convert to height method that gets height in inches and returns meters
       (c) Determine graduation with honors title method that gets GPA and returns honors title value
(3) For each action, the user should be prompted for corresponding data and given the appropriateoutput
(4) User should be able to select one action and then get prompted again for selection until they select exit choice

**Use the following for calculations or category determination**
- To convert from cubic feet to U.S. bushels use the formula: 1 cubic foot = 0.803564 U.S. bushel
- To convert from miles to kilometers use the following formula: 1 mile = 1.60934 km
- To determine graduation with the Honors title, create a method that uses a switch statement and the following ranges
- For categories use:
  - Cum Laude                 3.5-3.7
  - Magna Cum Laude     3.8-3.9
  - Summa Cum Laude     4.0+

**Test program:**
A minimum of 4 test cases should be supplied in the form of a table with columns indicating the input values, expected output, actual output, and if the test case passed or failed. This table shouldcontain 4 columns with appropriate labels and a row for each test case. An example template is shown below. Note that the actual output should be the actual results you receive when running your program and applying the input for the test record.

Make sure your Java program is using the recommended style such as:
- Javadoc comment upfront with your name as author, date, and brief purpose of the program
- Comments for variables and blocks of code to describe major functionality
- Meaningful variable names and prompts
- Identifiers are written in upper CamelCase

- Class name starts with upper case letter and variables in lower case letter
- Constants are written in All Capitals
- Use proper spacing and empty lines to make code human-readable

**Capture execution:**
You should capture and label screen captures associated with compiling your code and running each of your test cases.

**Here is a sample run:**

**RUN:**

```
    MENU
1: Convert cubic feet to U.S. bushels
2: Convert miles to kilometers
3: Determine graduation title with honors
9: Exit program

Enter your selection: 1

    Enter cubic feet: 5
    5 cubic ft. = 4.01782 U.S. bushels

    MENU
1: Convert cubic feet to U.S. bushels
2: Convert miles to kilometers
3: Determine graduation title with honors
9: Exit program

Enter your selection: 2

    Enter miles: 12
    12 miles = 19.3121 km

    MENU
1: Convert cubic feet to U.S. bushels
2: Convert miles to kilometers
3: Determine graduation title with honors
9: Exit program

Enter your selection : 3

    Enter GPA: 3.8
    Congratulations, you have graduated Magna Cum Laude!

    MENU
1: Convert cubic feet to U.S. bushels
2: Convert miles to kilometers
3: Determine graduation title with honors
9: Exit program

Enter your selection: 9
```

```
Thank you for using the program. Goodbye!
```

**Example test cases:**

| Input | Expected Output | Actual Output | Pass? |
|---|---|---|---|
| Selection=1 cubic feet=5 | 5 cubic ft = 4.01782 U.S bushels | 5 cubic ft = 4.01782 U.S bushels | Yes |
| Test Case 2 | | | |
| Test Case 3 | | | |
| Test Case 4 | | | |

**Submission requirements**

Deliverables include Java program (.java) and a single Word (or PDF) document. The Java and Word/PDF files should be named appropriately for the assignment (as indicated in the SubmissionRequirements document.

The word (or PDF) document should include screen captures showing the successful compiling and running of each of the test cases. Each screen capture should be properly labeled clearly indicated what the screen capture represents. The test cases table should be included in your Word or PDF document and properly labeled as well.

Submit your files to Assignment 5 submission area no later than the due date listed in your online classroom.

**Grading Rubric:**
The following grading rubric will be used to determine your grade:

| Attribute | Level (15-20 points) | Level (5-15 points) | Level 0 (0 - 5 points) |
|---|---|---|---|
| User input and loop | Correct or one incorrect prompt and/or captured input and loop code | Two mistakes in prompts and/or capture of input and/or loop | Three or more missing elements for user input and/or loop |
| Calculation and output | Correct or one mistake in calculation | Two mistakes in calculations and/or output | Three ore more missing or significantly incorrect calculations and/or output |
| Methods | Code is correctly implemented using methods | Calculation code is not all handled in separate methods | Calculations are not implemented as methods |
| Test Cases | Correct or one incorrect test case and/or test execution | Two incorrect or incomplete test cases and/or test execution | Three or more missing or significantly incorrect or incomplete test cases |

| | | | |
|---|---|---|---|
| Program documentation and style | Correct or one missing program comment, identifier, and/or screen capture | Two incorrect or incomplete documentation and/or style elements | Three or more missing or significantly incorrect documentation and/or style elements |