**Program 1:** This program contains two parts: the first part estimates the value of pi using a user's input through definite repetition. The second part of the program finds how many terms are needed to find a certain amount of decimals of pi through indefinite repetition.

Graphical user interface, text, application

Description automatically generated

Output:

Table

Description automatically generated

A picture containing text

Description automatically generated

Output:

Text, letter

Description automatically generated

**Program 2:** This program creates a menu display to be able to add a player to a roster, remove a player, update player rating, output players above a rating, output roster, and quit.

Text

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Output:

Table

Description automatically generatedA black and white document

Description automatically generated with low confidenceTable

Description automatically generated

**Program 3**: This program writes a script that inputs a sentence from the user, then uses a dictionary to summarize the number of occurrences of each letter. Case and blanks are ignored.

Graphical user interface, text, application, email

Description automatically generated

Output:

Graphical user interface, text, application, email

Description automatically generated