```
Last login: Mon Nov 19 18:25:41 on ttys000
Caijuns-MacBook-Air:~ fennec2000$ ssh qin@linprog8.cs.fsu.edu
                      -=-= AUTHORIZED USERS ONLY =-=-
You are attempting to log into a FSU Computer Science Department machine.
Please be advised by continuing that you agree to the terms of the
Computer Access and Usage Policy of the Department of Computer Science.
                      -=-= AUTHORIZED USERS ONLY =-=-

qin@linprog8.cs.fsu.edu's password:
Last login: Mon Nov 19 18:25:52 2018 from 10.135.155.95
            %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
            %                                        %
             %  DEPARTMENT OF COMPUTER SCIENCE  %
              %    Florida State University    %
             %                                    %
            %                                      %
            %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

          No mudding, IRC, or other games from here.
   Please get a private sector account for non-CS activities.

     See http://www.cs.fsu.edu for departmental information.
      See http://system.cs.fsu.edu for Systems information.
             Send email to help@cs.fsu.edu for help.


                          Attention!!

If you forward your CS email to your FSU emailbox, make sure your FSU
email address is up to date or you may miss important emails.

If you are over your disk or file quota, please check your CS email for
instruction on how to locate and remove files

To download Tectia, go to link https://system.cs.fsu.edu/ssh-tectia/.
If you are off FSU campus, use following ID to access the page:
User Name: sshcs
Password: letmedownloadit

For students: check your CS email at http://webmail2.cs.fsu.edu

--------------------------------NOTICE---------------------------------------
NOTE: Activity on linprog servers is currently being traced for research purpose
s.
No personal information is being gathered nor will any of the data be divulged.
Gathered data includes user directory structure, file read and write frequency,
and the size of file reads and writes.  However, if you'd like to opt out of
participating, please send an email indicating this to awang@cs.fsu.edu and
roy@cs.fsu.edu with "Opt-Out Request" as the subject line.

qin@linprog8.cs.fsu.edu:~>~vastola/usub/submit1 stringfun.cpp
********************* File submitted **********************
```

Here are the contents of your submitted file:

```
**********************************************************
/* Name: Caijun Qin
Date: 11/12/2018
Section: 6
Assignment: 6
Due Date: 11/20/2018
About this project:
This program allows the user to enter and edit a string with
a variety of options. The user may capitalize, uncaptitalize, replace specific
characters with new characters, rewrite the string, or generate a random string.
The user can even analyze the character type count in the string, ie the number
of letters, digits, punctuation marks, and white spaces.
Assumptions: The user will only enter real numbers and no characters.
All work below was performed by Caijun Qin */

#include <iostream>
#include <string>
#include <cctype>
#include <ctime>
#include <cstdlib>
using namespace std;

//FUNCTION DECLARATIONS
void printMenu();
void print(string str);
void uppercase(string &str);
void lowercase(string &str);
void replaceChar(string &str);
void printStats(string str);
void newString(string &str);
void jazz(string &str);

int main(){
    double menuChoice = -1;
    string choice;

    //starts the program here
    cout << "To get started, enter anything you'd like, then hit enter:  \n";
    getline(cin, choice);
    printMenu();

    while(menuChoice != 0){
        //selects for the menu option
        cout << "Selection -----> ";
        cin >> menuChoice;

        //check for invalid numerical input, out of range, or character input
        while(menuChoice != (int) menuChoice || menuChoice < 0 || menuChoice > 8
){
            cout << "Invalid Choice." << "\n\n";
            cout << "Selection -----> ";
```

```
            cin >> menuChoice;
        }

        //executes function based on menu option selected
        switch((int) menuChoice){
            case 1:
                print(choice);
                break;
            case 2:
                uppercase(choice);
                break;
            case 3:
                lowercase(choice);
                break;
            case 4:
                replaceChar(choice);
                break;
            case 5:
                printStats(choice);
                break;
            case 6:
                newString(choice);
                break;
            case 7:
                jazz(choice);
                break;
            case 8:
                printMenu();
        }
    }
    cout << "Bye!" << "\n\n";

    return 0;
}

//FUNCTION DEFINITIONS
//option 1
void print(string str){
    cout << "Current String:  " << str << "\n\n\n";
    return;
}

//option 2
void uppercase(string &str){
    for(int counter = 0; counter < str.size(); counter++){
        str[counter] = toupper(str[counter]);
    }

    return;
}

//option 3
```

```
void lowercase(string &str){
    for(int counter = 0; counter < str.size(); counter++){
        str[counter] = tolower(str[counter]);
    }

    return;
}

//option 4
void replaceChar(string &str){
    char a;
    char b;
    int replaceCounter = 0;
    cout << "Replace all of these characters:  ";
    cin >> a;
    cout << "To these characters:  ";
    cin >> b;
    for(int counter = 0; counter < str.size(); counter++){
        if(str[counter] == a){
            str[counter] = b;
            replaceCounter++;
        }
    }
    cout << replaceCounter << " characters replaced.";
    cout << "\n\n";

    return;
}

//option 5
void printStats(string str){
    //keeps count of each statistic
    int letters = 0;
    int punctuations = 0;
    int digits = 0;
    int whitespace = 0;
    for(int counter = 0; counter < str.size(); counter++){
        if(isalpha(str[counter]) != false){
            letters++;
        } else if(ispunct(str[counter]) != false){
            punctuations++;
        } else if(isdigit(str[counter]) != false){
            digits++;
        } else if(isspace(str[counter]) != false){
            whitespace++;
        }
    }

    //prints out the stats
    cout << "Letters:  " << letters << "\n";
    cout << "Punctuation:  " << punctuations << "\n";
    cout << "Digits:  " << digits << "\n";
```

```
    cout << "Whitespace:  " << whitespace << "\n";
    cout << "\n";

    return;
}

//option 6
void newString(string &str){
    str.clear();
    cout << "Enter a new string:  \n";
    cin.ignore();
    getline(cin, str);
    cout << "\n";

    return;
}

//option 7
void jazz(string &str){
    srand(time(0));
    int size = rand() % 50 + 1;
    str.clear();
    for(int counter = 0; counter < size; counter++){
        str += (char) (rand() % 91 + 32);
    }
    cout << "Your string is now:  " << str;
    cout << "\n\n";

    return;
}

//option 8
void printMenu(){
    cout << "\n";
    cout << "String Manipulator Options Menu \n";
    cout << "------------------------------ \n";
    cout << "1 - Print the current string \n";
    cout << "2 - Make the string all Uppercase \n";
    cout << "3 - Make the string all Lowercase \n";
    cout << "4 - Replace a character \n";
    cout << "5 - Show string statistics \n";
    cout << "6 - Enter a new string \n";
    cout << "7 - Jazz things up... (You'll lose your current string!) \n";
    cout << "8 - Show this menu \n";
    cout << "0 - Quit \n";
    cout << "\n\n";

    return;
}
```

```
********************* END FEEDBACK ************************
*    PLEASE VIEW ABOVE TO VERIFY THE CONTENTS OF          *
*               YOUR SUBMITTED FILE                       *
************************************************************
qin@linprog8.cs.fsu.edu:~>
```