```
Script started on 2024-02-28 17:53:04-06:00 [TERM="xterm-256color" TTY="/dev/pts/0" COLUMNS="159" LINES="49"]
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ pwd
[?2004l
/home/jovyan/CS2/Projects/Project_3
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ ls -la
[?2004l
total 56
drwxr-sr-x 3 jovyan users  4096 Feb 28 17:53 [0m[01;34m.[0m
drwxr-sr-x 6 jovyan users  4096 Feb 24 11:19 [01;34m..[0m
-rwxr-xr-x 1 jovyan users 23712 Feb 28 17:50 [01;32mdecoder[0m
-rw-r--r-- 1 jovyan users  2946 Feb 28 17:50 galactic_decoder.cpp
drwxr-sr-x 2 jovyan users  4096 Feb 24 11:32 [01;34m.ipynb_checkpoints[0m
-rw-r--r-- 1 jovyan users    22 Feb 24 11:30 passcode1.dat
-rw-r--r-- 1 jovyan users  1656 Feb 24 11:32 passcode2.dat
-rw-r--r-- 1 jovyan users  2605 Feb 24 11:32 passcode3.dat
-rw-r--r-- 1 jovyan users     5 Feb 24 11:32 passcode4.dat
-rw-r--r-- 1 jovyan users     0 Feb 28 17:53 Sabin_Project_3.log
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ cat -n galactic_decoder.cpp
[?2004l
     1  /*
     2  Tyler Sabin
     3  Section 004
     4  Project 3
     5  In this project, we will be decoding a passcode
     6  through a set of instructions given by a file with
     7  a starting point of 5 on the pincode
     8  */
     9
    10  #include <iostream>
    11  #include <fstream>
    12  #include <string>
    13
    14  //Declare functions at the top
    15  int open_file(std::ifstream &inFile);
    16  std::string decode_passcode(std::ifstream &inFile, std::string &passcode);
    17
    18  int main(){
    19
    20      //Declare variables for read file & passcode
    21      std::ifstream inFile{};
    22      std::string passcode{};
    23      int fileExists{};
    24
    25      //Open file
    26      fileExists = open_file(inFile);
    27
    28      //Store the returned passcode into a variable
    29      if(fileExists == 1){
    30          passcode = decode_passcode(inFile, passcode);
    31          //Print out the passcode
    32          std::cout << "Passcode: " << passcode << '\n';
    33      }
    34
    35
    36      //Close file
    37      inFile.close();
    38
    39      return 0;
    40  }
    41
    42
    43
    44
    45
    46
    47  int open_file(std::ifstream &inFile){
    48
    49      //Set variable for input file name
    50      std::string fileName{};
    51
    52      std::cout << "Enter file to translate: ";
    53      std::cin >> fileName;
    54      std::cout << '\n';
    55
    56      //Attempt to open file, if file doesn't exist, print an error code
    57      inFile.open(fileName);
    58      if(!inFile){
    59          std::cout << fileName << "was unable to be opened...\n";
    60          return 2;
    61      } else{
```

```
        return 1;
    }

}

std::string decode_passcode(std::ifstream &inFile, std::string &passcode){

    //Set variables for char instruction and starting point
    char instruction{};
    int startingPoint {5};

    //Loop through the file while contents exist
    while(inFile){
        //Get the char for the instruction (R/L/U/D)
        inFile.get(instruction);
        //If the character is a new line char, skip steps
        if(instruction != '\n'){
            /*
            If the char is U and the current position is not 2, subtract 3
            If the char is D and the current position is not 8, add 3
            If the char is R and the current position is not 3, 6, or 9, add 1
            If the char is L and the current position is not 1, 4, or 7, subtract 1
            */
            if(instruction == 'U' && startingPoint != 2){
                startingPoint = startingPoint - 3;
            } else if(instruction == 'D' && startingPoint != 8){
                startingPoint = startingPoint + 3;
            } else if(instruction == 'R' && (startingPoint != 3 && startingPoint != 6 && startingPoint != 9)){
                startingPoint = startingPoint + 1;
            } else if(instruction == 'L' && (startingPoint != 1 && startingPoint != 4 && startingPoint != 7)){
                startingPoint = startingPoint - 1;
            } else{
                startingPoint = startingPoint;
            }
        }else{
            //Concat the current point to the passcode
            passcode += std::to_string(startingPoint);
            startingPoint = 5;
        }
    }
    //Return the passcode as a string
    return passcode;

}[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ g++ -Wall -Werror -Wextra galactic_decope[K[Kder.cpp -o decoder
[?2004l
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ ./decoder
[?2004l
Enter file to translate: passcode1.dat

Passcode: 4156
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ ./decoder
[?2004l
Enter file to translate: passcode2.dat

Passcode: 531736201553206158665325558587612956565626286652846591349645625
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ ./decoder
[?2004l
Enter file to translate: passcode3.dat

Passcode: -3334-493
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ ./decoder
[?2004l
Enter file to translate: passcode4.dat

Passcode: 555555
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ ./decoderg++ -Wall -Werror -Wextra galactic_decoder.cpp -o decoder
[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C./decoder[K
[?2004l
Enter file to translate: dum.dat

dum.datwas unable to be opened...
[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ ./decoder
[?2004l
Enter file to translate: sum.dat

sum.datwas unable to be opened...
```

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[?2004h(base) ]0;jovyan@jupyter-tes4j: ~/CS2/Projects/Project_3[01;32mjovyan@jupyter-
tes4j[00m:[01;34m~/CS2/Projects/Project_3[00m$ exit
[?2004l
exit

Script done on 2024-02-28 17:55:02-06:00 [COMMAND_EXIT_CODE="0"]
```