Job No: 05

Job Name: Write a program for River Crossing Puzzle

Theory: The River Crossing Puzzle is about moving things across a river from one side to another, but you must follow these rules:

1. The person can take only one thing in the boat each time.
2. The person must always be in the boat to steer it.
3. If the goat and cabbage are alone on one side, the goat eats the cabbage.
4. If the lion and goat are alone on one side, the lion eats the goat.

Code:

```
let leftBank = ["M", "L", "G", "C"];
let rightBank = [];
let count = 0;
console.log("Before Process");
console.log("Elements in the Left Side Bank ", leftBank);
console.log("Elements in the Right Side Bank ", rightBank);
while (true) {
 console.log(leftBank[1],"",leftBank[2],"",leftBank[3],"Select any one");
 let item = prompt("Enter item:").toUpperCase();
 count++;
 if (leftBank[1]===item && leftBank[2] === "G" && leftBank[3] === "C") {
    console.log("Goat will eat cabbage.");
    break;
 }
 if(leftBank[2]===item && leftBank.includes("C")
     && leftBank.includes("L")) {
    rightBank.push(item);
    delete leftBank[2];
  }
  if (rightBank.includes("G") && leftBank.includes("L") &&
    leftBank[3] === item) {
    console.log("Goat will return to left bank");
    leftBank[2] = rightBank[0];
    rightBank[0] = item;
    delete leftBank[3];
  }
  if (rightBank.includes("G") && leftBank.includes("C") &&
    leftBank[1] === item ) {
    leftBank[2] = rightBank[0];
    rightBank[0] = item;
    delete leftBank[1];
  }
  if (rightBank.includes("C") && leftBank.includes("L") &&
    leftBank[2] === item ) {
```

```
    leftBank[3] = rightBank[0];
    rightBank[0] = item;
    delete leftBank[2];
  }
  if (rightBank.includes("C") && leftBank.includes("G") &&
    leftBank[1] === item ) {
    rightBank.push(item);
    delete leftBank[1];
  }
  if (rightBank.includes("L") && leftBank.includes("G") &&
    leftBank[3] === item) {
    rightBank.push(item);
    delete leftBank[3];
  }
  if (rightBank.includes("L") && leftBank.includes("C") &&
    leftBank[2] === item) {
    leftBank[1] = rightBank[0];
    rightBank[0] = leftBank[2];
    delete leftBank[2];
  }
  if (leftBank[2]===item && leftBank[3] !== "C" && leftBank[1] !== "L") {
    rightBank.push(leftBank[2]);
    rightBank.push("M");
    leftBank[2] = "";
    leftBank = [];
    console.log("Goal is reached");
    break;
  }
  if (leftBank[3] === item) {
    console.log("Lion eats goat");
    break;
  }
}
console.log("After Process");
console.log(`You have tried ${count} times to reach the goal`);
console.log("Elements in the Left Side Bank ", leftBank);
console.log("Elements in the Right Side Bank ", rightBank);
```

Input/Output:

```
L   G   C Select any one
Select: G
Select: L
Goat will return to left bank
Select: C
Select: G
Goal is reached
After Process
You have tried 4 times to reach the goal
Elements in the Left Side Bank   ▶ []
Elements in the Right Side Bank   ▶ (4) ['L', 'C', 'G', 'M']
```