```
            }
        }
        if (col2 < 5) {
            break;
        }
    }

    if (row1 == row2) {
        plaintext[k++] = matrix[row1][(col1 + 4) % 5];
        plaintext[k++] = matrix[row2][(col2 + 4) % 5];
    } else if (col1 == col2) {
        plaintext[k++] = matrix[(row1 + 4) % 5][col1];
        plaintext[k++] = matrix[(row2 + 4) % 5][col2];
    } else {
        plaintext[k++] = matrix[row1][col2];
        plaintext[k++] = matrix[row2][col1];
    }
  }
  plaintext[k] = '\0';
}

int main() {
  char plaintext[100];
  char key[100];
  char ciphertext[sizeof(plaintext) * 2];
  char decryptedtext[sizeof(plaintext) * 2];

  printf("Enter the plaintext: ");
  scanf("%99s", plaintext);

  printf("Enter the key: ");
  scanf("%99s", key);

  playfair_cipher(plaintext, key, ciphertext);
  printf("Ciphertext: %s\n", ciphertext);

  playfair_decipher(ciphertext, key, decryptedtext);
  printf("Decrypted text: %s\n", decryptedtext);

  return 0;
}
```