```c
#include <stdio.h>
#include <string.h>
int main() {
    char gram[100], part1[50], part2[50], modifiedGram[50], newGram[50];
    int i, j = 0, k = 0, pos = 0;
    printf("Enter Production : S->");
    fgets(gram, sizeof(gram), stdin);
    gram[strcspn(gram, "\n")] = '\0';
    for (i = 0; gram[i] != '|' && gram[i] != '\0'; i++, j++)
        part1[j] = gram[i];
    part1[j] = '\0';
    for (j = ++i, i = 0; gram[j] != '\0' && gram[j] != '|'; j++, i++)
        part2[i] = gram[j];
    part2[i] = '\0';
    for (i = 0; i < strlen(part1) && i < strlen(part2); i++) {
        if (part1[i] == part2[i]) {
            modifiedGram[k++] = part1[i];
            pos = i + 1;
        } else
            break;
    }
```

```
    char suffix1[50], suffix2[50];
    strcpy(suffix1, part1 + pos);
    strcpy(suffix2, part2 + pos);
    modifiedGram[k] = 'X';
    modifiedGram[k + 1] = '\0';
    j = 0;
    if (strlen(suffix1) == 0)
        strcpy(newGram, "ε");
    else
        strcpy(newGram, suffix1);
    strcat(newGram, "|");
    if (strlen(suffix2) == 0)
        strcat(newGram, "ε");
    else
        strcat(newGram, suffix2);
    printf("\nS->%s", modifiedGram);
    printf("\nX->%s\n", newGram);
    return 0;
}
```

```
Enter Production : S->iEtS|iEtSeS

S->iEtSX
X->ε|eS


=== Code Execution Successful ===
```