Task - 9

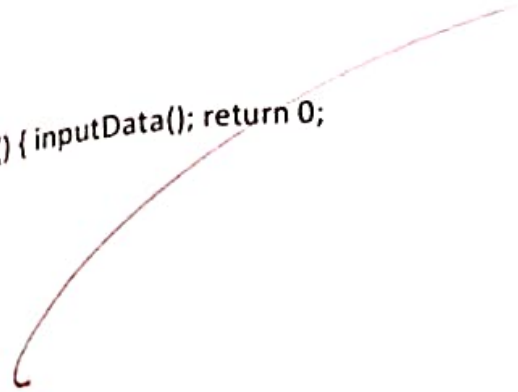
String processing - Basics, string Functions, string operations, Two algorithms for string pattern matching - Naive approach and Robin Karp approach.

Merge two strings

Algorithm

1. Read the first string S_1
2. Read the second string S_2
3. Initialize two variables i and j to 0
4. Initialize empty string merged str.
5. Repeat the following steps while i is less than the length of S_1 and j is less than the length of S_2.
   a. Append the i-th character of S_1 to merged str
   b. Append the j-th character of S_2 to merged str
   c. Increment i by 1
   d. Increment j by 1
6. If i is less than the length of S_1, append the remaining characters of S_1 to merged str
7. If j is less than the length of S_2, append the remaining characters of S_2 to merged str
8. Print merged str.

```
#include <iostream> using namespace std;

void inputData() { int t, a;

string b; cin >> t; while(t--) {

cin >> a >> b;

cout << a << " " << b << endl;

}

}

int main() { inputData(); return 0;

}
```



Task - 9B

Getting input

Algorithm

1. Read the number of test cases T from the input.
2. Loop through T test cases
   a. Read the integer a from input
   b. Read the string b from input using fgets() or scanf("%[^\n]s",b)
   c. Print the values of a and b separated by a space using printf() function.
3. End loop.

```
#include <stdio.h> #include <string.h>

int main() { int t;
scanf("%d", &t); // read the number of test cases

while (t--) {
char s1[10005], s2[10005], ans[20005];
scanf("%s %s", s1, s2); // read the two strings

int len1 = strlen(s1), len2 = strlen(s2); int i, j, k;
i = j = k = 0;
// merge the strings alternatively while (i < len1 && j < len2) {
ans[k++] = s1[i++]; ans[k++] = s2[j++];
}
// add the remaining characters from s1 or s2 while (i < len1) ans[k++] = s1[i++];
while (j < len2) ans[k++] = s2[j++];

ans[k] = '\0'; // add null terminator to the merged string

printf("%s\n", ans); // print the merged string
}

return 0;
}
```

ERFORMANCE (5)	5
SULT AND ANALYSIS (3)	3
VIVA VOCE (3)	3
RECORD (4)	4
TOTAL (15)	15
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Result:

Thus, the program is executed and verified succes