

Cpp Practicals\Q4\Q4.cpp

```
1  /*
2  4. Write a menu driven program to perform string manipulation (without using inbuilt
   string functions):
3      a. Show address of each character in string
4      b. Concatenate two strings.
5      c. Compare two strings
6      d. Calculate length of the string (use pointers)
7      e. Convert all lowercase characters to uppercase
8      f. Reverse the string
9      g. Insert a string in another string at a user specified position
10
11
12 */
13
14 #include <iostream>
15 #include <string>
16 using namespace std;
17
18 void showAddress(string); //a
19 string concatenate(string, string); //b
20 void compare(string, string); //c
21 int stringLength(string); //d
22 string uppercase(string); //e
23 string reverse(string); //f
24 string insertString(string, string, int); //g
25
26 int main()
27 {
28     char key;
29     while (key != ' ')
30     {
31         cout<<"String Manipulation Program : Press a-g to manipulate strings, press
   spacebar to exit"<<endl;
32         cout<<"      a. Show address of each character in string"<<endl;
33         cout<<"      b. Concatenate two strings. "<<endl;
34         cout<<"      c. Compare two strings "<<endl;
35         cout<<"      d. Calculate length of the string (use pointers) "<<endl;
36         cout<<"      e. Convert all lowercase characters to uppercase "<<endl;
37         cout<<"      f. Reverse the string "<<endl;
38         cout<<"      g. Insert a string in another string at a user specified
   position"<<endl;
39
40         char response;
41         cout<<"Enter your response : ";
42         cin>> response;
43
44         switch (response)
45         {
46             case 'a' :
47             {
48                 string str;
49                 cout<<"Enter a string : ";
50                 cin>>str;
51                 showAddress(str);
52                 break;
53
54             }
```

```

55
56     case 'b':
57     {
58         string str1, str2;
59         cout<<"Enter first string : ";
60         cin.ignore();
61         getline(cin, str1);
62         cout<<"Enter second string : ";
63         getline(cin, str2);
64         string concinated = concatenate(str1, str2);
65         cout<<concinated<<endl;
66         break;
67     }
68
69     case 'c':
70     {
71         string str1, str2;
72         cout<<"Enter first string : ";
73         cin.ignore();
74         getline(cin, str1);
75         cout<<"Enter second string : ";
76         getline(cin, str2);
77         compare(str1, str2);
78         break;
79     }
80
81     case 'd':
82     {
83         string str;
84         cout<<"Enter a string : ";
85         cin>>str;
86         int len = stringLength(str);
87         cout << len<<endl;
88         break;
89     }
90
91     case 'e' :
92     {
93         string str;
94         cout<<"Enter a string : ";
95         cin>>str;
96         string upper_str = uppercase(str);
97         cout <<upper_str<<endl;
98         break;
99     }
100
101     case 'f':
102     {
103         string str;
104         cout<<"Enter a string : ";
105         cin>>str;
106         string reversed_str = reverse(str);
107         cout<<reversed_str<<endl;
108         break;
109     }
110
111     case 'g':
112     {
113         string str1, str2;
114         int pos;

```

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115         cout<<"Enter first string 1 : ";
116         cin.ignore();
117         getline(cin, str1);
118         cout<<"Enter second string 2 : ";
119         getline(cin, str2);
120         cout<<"Enter position where you want to insert string 2 : ";
121         cin>>pos;
122         string newStr = insertString(str1, str2, pos);
123         cout<<newStr<<endl;
124         break;
125     }
126     default:
127     {
128         break;
129     }
130 }
131 }
132 }
133
134 void showAddress(string str)
135 {
136     for(int i = 0; i < str.length(); i++)
137     {
138         cout<<"Position of "<< str[i]<<": "<< (void*) str[i] <<endl;
139     }
140 }
141
142 string concatenate(string str1, string str2)
143 {
144     string conc;
145     conc = str1 + str2;
146     return conc;
147 }
148
149 void compare(string str1, string str2)
150 {
151     if(str1 > str2)
152     {
153         cout<<str1<<" > "<<str2<<endl;
154     }
155     else if (str1 < str2) {
156         cout<<str2<<" < "<<str1<<endl;
157     }
158     else {
159         cout<<str1<<" = "<<str2<<endl;
160     }
161 }
162
163
164
165 int len(string &x)
166 {
167     int count = 0;
168     for (int i : x)
169     {
170         count++;
171     }
172     return(count);
173 }
174

```

```

175 int stringLength(string str)
176 {
177
178     char *sptr;
179     sptr=&str[0];
180
181     int count=0;
182
183     int i=0;
184     while(*sptr!='\0'){
185         sptr++;
186         count++;
187     }
188     return count;
189 }
190
191
192
193 string uppercase(string str)
194 {
195     string str_upper;
196     for(int i = 0; i < str.length(); i++)
197     {
198         char letter = str[i];
199         str_upper += toupper(letter);
200     }
201     return(str_upper);
202 }
203
204 string reverse(string str)
205 {
206     string reversed_str;
207     for(int i = 0; i < str.length(); i++)
208     {
209         char letter = str[i];
210         reversed_str = letter + reversed_str;
211     }
212     return(reversed_str);
213 }
214
215 string insertString(string str1, string str2, int pos)
216 {
217     string newStr;
218     for (int i = 0 ; i < pos; i ++ )
219     {
220         newStr += str1[i];
221     }
222     newStr += str2;
223     for (int i = pos ; i < str1.length(); i ++ )
224     {
225         newStr += str1[i];
226     }
227     return(newStr);
228 }
229
230 }
231
232
233 /*
234

```

```

235 Output :
236
237 String Manipulation Program : Press a-g to manipulate strings, press spacebar to exit
238     a.      Show address of each character in string
239     b.      Concatenate two strings.
240     c.      Compare two strings
241     d.      Calculate length of the string (use pointers)
242     e.      Convert all lowercase characters to uppercase
243     f.      Reverse the string
244     g.      Insert a string in another string at a user specified position
245 Enter your response : a
246 Enter a string : Apple
247 Position of A: 0x41
248 Position of p: 0x70
249 Position of p: 0x70
250 Position of l: 0x6c
251 Position of e: 0x65
252 String Manipulation Program : Press a-g to manipulate strings, press spacebar to exit
253     a.      Show address of each character in string
254     b.      Concatenate two strings.
255     c.      Compare two strings
256     d.      Calculate length of the string (use pointers)
257     e.      Convert all lowercase characters to uppercase
258     f.      Reverse the string
259     g.      Insert a string in another string at a user specified position
260 Enter your response : b
261 Enter first string : Apple
262 Enter second string : Mango
263 AppleMango
264 String Manipulation Program : Press a-g to manipulate strings, press spacebar to exit
265     a.      Show address of each character in string
266     b.      Concatenate two strings.
267     c.      Compare two strings
268     d.      Calculate length of the string (use pointers)
269     e.      Convert all lowercase characters to uppercase
270     f.      Reverse the string
271     g.      Insert a string in another string at a user specified position
272 Enter your response : c
273 Enter first string : Pizza
274 Enter second string : Burger
275 Pizza > Burger
276 String Manipulation Program : Press a-g to manipulate strings, press spacebar to exit
277     a.      Show address of each character in string
278     b.      Concatenate two strings.
279     c.      Compare two strings
280     d.      Calculate length of the string (use pointers)
281     e.      Convert all lowercase characters to uppercase
282     f.      Reverse the string
283     g.      Insert a string in another string at a user specified position
284 Enter your response : d
285 Enter a string : Apple
286 5
287 String Manipulation Program : Press a-g to manipulate strings, press spacebar to exit
288     a.      Show address of each character in string
289     b.      Concatenate two strings.
290     c.      Compare two strings
291     d.      Calculate length of the string (use pointers)
292     e.      Convert all lowercase characters to uppercase
293     f.      Reverse the string
294     g.      Insert a string in another string at a user specified position

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```
295 | Enter your response : e
296 | Enter a string : Hello
297 | HELLO
298 | String Manipulation Program : Press a-g to manipulate strings, press spacebar to exit
299 |     a.      Show address of each character in string
300 |     b.      Concatenate two strings.
301 |     c.      Compare two strings
302 |     d.      Calculate length of the string (use pointers)
303 |     e.      Convert all lowercase characters to uppercase
304 |     f.      Reverse the string
305 |     g.      Insert a string in another string at a user specified position
306 | Enter your response : f
307 | Enter a string : Avinash
308 | hsanivA
309 | String Manipulation Program : Press a-g to manipulate strings, press spacebar to exit
310 |     a.      Show address of each character in string
311 |     b.      Concatenate two strings.
312 |     c.      Compare two strings
313 |     d.      Calculate length of the string (use pointers)
314 |     e.      Convert all lowercase characters to uppercase
315 |     f.      Reverse the string
316 |     g.      Insert a string in another string at a user specified position
317 | Enter your response : g
318 | Enter first string 1 : Avinash
319 | Enter second string 2 : Shrivastava
320 | Enter position where you want to insert string 2 : 7
321 | AvinashShrivastava
322 |
323 |
324 | */
```