Branch of Computer Science and Engineering

Project Report on

SRM Bus Reservation System

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Group - 8

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Course:

CPP

Subject code:

CSE - 206

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Contents

Abstract

This is a simple Bus Reservation System programmed using CPP language. This program allows you to add bus details (bus number, driver details, arrival and departure time, route), then you can reserve a bus seat according to the vacant seats available. One can check for a list of vacant seats on a bus. It also allows you to see the available buses. This is a simple implementation of CPP code using class.

Usage of the following functions in the code

- void add new bus(): Used to add new bus details
- void allotmentOfSeatToPassenger(): used to allot a seat to a passenger
- void empty(): to check if the seats are empty
- void showAvailableBusSeats(): shows available bus seats
- void showAvailableBuses(): shows all available buses
- void showReservedBusSeats(int i): to show the reserved bus seats
- void vline(char ch): to print the characters * or – as a line of division

Source Code

```
#include<bits/stdc++.h>
using namespace std;
/* p variable keeps track of number of bus available at the moment.*/
int p = 0;

class a
{
  /*Note: Don't use space in input.
  *busPlateNum can store a input unto length 7 and so on for other attributes.
  *Here seatNumber is no. of seats in a bus, seatNumber is matrix type char i.e, seatNumber[8][4] have 4 columns and 8 rows i.e,
  8*4=32 seats in total, while seatNumber[8][4][10] means each of the seatNumber can store a nameOfPassenger with 10 characters each*/
  char busn[10], driver[25], arrival[15], depart[15], from[25], to[25], seat[8][4][10];

public:

  void addNewBus();

  void allotmentOfSeatToPassenger();

  void empty();

  void showAvailableBusSeats();

  void showAvailableBuses();

  void showReservedBusSeats(int i);

}
bus[25];
```

```
 void vline(char ch)
{

  for (int i=100;i>0;i--){
    cout<<ch;
  }
  cout<<endl;

}

 void a::addNewBus()
{

  cout<<"Enter bus no: ";

  cin>>bus[p].busn;

  cout<<"\nEnter Driver's name: ";

  cin>>bus[p].driver;

  cout<<"\nArrival time : ";

  cin>>bus[p].arrival;

  cout<<"\nDeparture: ";

  cin>>bus[p].depart;

  cout<<"\nFrom: ";
```

```
61
62      cin>>bus[p].from;
63
64      cout<<"\nTo: ";
65
66      cin>>bus[p].to;
67
68      bus[p].empty(); // Fill all the seats with 'empty'
69
70      p++; //Number of buses(index of array bus) increase
71
72  }
73
74  void a::allotmentOfSeatToPassenger()
75
76  {
77
78      int seat;
79
80      char number[5];//Bus number in which you want to reserve seat
81
82      string a,g;
83
84      top:
85
86      cout<<"Bus no: ";
87
88      cin>>number;
89
90      int n;
```

```
91
92      for(n=0;n<=p;n++)
93
94      {
95
96        if(strcmp(bus[n].busn, number)==0) //Check if bus number exist or not, if exist n will be the index of array bus
97
98        break;
99
100     }
101
102     while(n<=p)
103
104     {
105
106       cout<<"\nSeat Number: ";
107
108       cin>>seat;
109
110       if(seat>32) //Can't allocate as there are only 32 seats
111       {
112
113         cout<<"\nThere are only 32 seats available in this bus.";
114
115       }
116
117       else
118
119       {
120
```

```
121     if (strcmp(bus[n].seat[seat/4][(seat%4)-1], "Empty")==0) // used to break the seat number in row-column basis, If empty then allocate passenger
122
123       {
124
125         cout<<"Enter passanger's name, age and gender : ";
126
127         cin>>bus[n].seat[seat/4][(seat%4)-1]>>a>>g;
128
129         break;
130
131       }
132
133     else
134
135       cout<<"The seat number is already reserved.\n";
136
137       }
138
139       }
140
141     if(n>p)
142
143     {
144
145       cout<<"Enter correct bus no.\n";
146
147       goto top;
148
149     }
150
```

```
151   }
152
153
154  void a::empty()
155
156  {
157
158    for(int i=0; i<8;i++)
159
160    {
161
162      for(int j=0;j<4;j++)
163
164      {
165
166        strcpy(bus[p].seat[i][j], "Empty");
167
168      }
169
170    }
171
172  }
173
174
175
176  void a::showAvailableBusSeats()
177
178  {
179
180    int n;
```

```
181
182     char number[5];
183
184     cout<<"Enter bus no: ";
185
186     cin>>number;
187
188   //Finds the bus number matched with input bus number
189     for(n=0;n<=p;n++)
190
191     {
192
193       if(strcmp(bus[n].busn, number)==0) // if matched the n will be the index of bus
194
195       break;
196
197     }
198
199   while(n<=p)
200
201   {
202
203     vline('*');
204     cout<<"\nBus no: \t"<<bus[n].busn
205
206     <<"\nDriver: \t"<<bus[n].driver<<"\t\t\t\t\tArrival time: \t"
207
208     <<bus[n].arrival<<"\tDeparture time:"<<bus[n].depart
209
210     <<"\nFrom: \t\t"<<bus[n].from<<"\t\t\t\t\tTo: \t\t"<<
```

```
212     bus[n].to<<"\n";
213
214     vline('*');
215
216     bus[0].showReservedBusSeats(n); //Checks for reserved seats in the current bus( nth bus)
217
218     int a=1;
219
220     for (int i=0; i<8; i++)
221
222     {
223
224       for(int j=0;j<4;j++)
225
226       {
227
228         a++;
229
230         if(strcmp(bus[n].seat[i][j],"Empty")!=0)
231
232         cout<<"\nThe seat no "<<(a-1)<<" is reserved for "<<bus[n].seat[i][j]<<".";
233
234       }
235
236     }
237
238     break;
239
240     }
```

```
241
242     if(n>p)
243
244       cout<<"Enter correct bus no: ";
245
246   }
247
248
249   void a::showReservedBusSeats(int l)
250   {
251
252     int s=0,h=0;
253
254     for (int i =0; i<8;i++)
255
256     {
257
258       cout<<"\n";
259
260       for (int j = 0;j<4; j++)
261
262       {
263
264         s++;
265
266         if(strcmp(bus[l].seat[i][j], "Empty")==0)
267
268           {
269
270             cout.width(5);
271
272             cout.fill(' ');
273
274             cout<<s<<".";
275
276             cout.width(10);
277
278             cout.fill(' ');
279
280             cout<<bus[l].seat[i][j];
281
282             h++;
283
284           }
285
286           else
287
288           {
289
290           cout.width(5);
291
292           cout.fill(' ');
293
294           cout<<s<<".";
295
296           cout.width(10);
297
298           cout.fill(' ');
299
300           cout<<"Reserved";
```

```
301
302         }
303
304       }
305
306     }
307
308    cout<<"\n\nThere are "<<h<<" seats empty in Bus No: "<<bus[l].busn;
309
310  }
311
312
313  void a::showAvailableBuses()
314
315 {
316
317    for(int n=0;n<p;n++)
318
319   {
320
321      vline('*');
322
323      cout<<"Bus no: "<<bus[n].busn<<"\n\nDriver: "<<bus[n].driver
324
325      <<"\t\t\tArrival time: "<<bus[n].arrival<<"\t\tDeparture Time: "
326
327      <<bus[n].depart<<"\n\nFrom: "<<bus[n].from<<"\t\tTo: "
328
329      <<bus[n].to<<"\n";
```

```
331      vline('*');
332
333      vline('_');
334
335   }
336
337 }
338
339
340 int main()
341
342 {
343
344
345    int choice;
346    vline('-');
347    cout<<"\t\t\t\t****SRM Bus Reservation System****"<<endl<<endl;
348    vline('-');
349    while(1)
350    {
351
352
353
354    cout<<endl;
355    vline('*');
356    cout<<"\n\n";
357
358    cout<<"\t\t\t1.Add new Bus Details:\n\t\t\t"
359
360    <<"2.Reserve your seats:\n\t\t\t"
```

```
361
362     <<"3.Show the available seats in a bus:\n\t\t\t"
363
364     <<"4.Buses Available Now: \n\t\t\t"
365
366     <<"5.Exit";
367     cout<<endl;
368     vline('*');
369     cout<<"\n\t\t\tEnter your choice:-> ";
370
371     cin>>choice;
372     vline('*');
373
374     switch(choice)
375
376     {
377
378       case 1:  bus[p].addNewBus();
379
380         break;
381
382       case 2:  bus[p].allotmentOfSeatToPassenger();
383
384         break;
385
386       case 3:  bus[0].showAvailableBusSeats();
387
388         break;
389
390       case 4:  bus[0].showAvailableBuses();
391
392         break;
393
394       case 5:  {
395         cout<<"Successfully Logged out from the Application. Visit Again!"<<endl<<"< Thank You :) >"<<endl<<"Created by Prishitha, Vaishnavi, Hima and Mahitha.
396         exit(0);
397       };
398
399   }
400
401 }
402
403 return 0;
404
405 }
```

Output

```
--------------------------------------------------------------------------------------------------------
                              ****SRM Bus Reservation System****

--------------------------------------------------------------------------------------------------------

********************************************************************************************************


                        1.Add new Bus Details:
                        2.Reserve your seats:
                        3.Show the available seats in a bus:
                        4.Buses Available Now:
                        5.Exit
********************************************************************************************************

                        Enter your choice:-> 1
********************************************************************************************************
Enter bus no: 101

Enter Driver's name: Suresh

Arrival time : 8.00AM

Departure: 8.05AM

From: Vijayawada

To: Mangalgiri

********************************************************************************************************


                        1.Add new Bus Details:
                        2.Reserve your seats:
                        3.Show the available seats in a bus:
                        4.Buses Available Now:
                        5.Exit
********************************************************************************************************

                        Enter your choice:-> 1
********************************************************************************************************
Enter bus no: 5G

Enter Driver's name: raja

Arrival time : 9.00AM

Departure: 9.30AM
```

```
From: Vijayawada

To: Hyderabad

*****************************************************************************************************



                        1.Add new Bus Details:
                        2.Reserve your seats:
                        3.Show the available seats in a bus:
                        4.Buses Available Now:
                        5.Exit
*****************************************************************************************************

                        Enter your choice:-> 4
*****************************************************************************************************
*****************************************************************************************************
Bus no: 101

Driver: Suresh                  Arrival time: 8.00AM            Departure Time: 8.05AM

From: Vijayawada                To: Mangalgiri
*****************************************************************************************************
_____________________________________________________________________________________________________
*****************************************************************************************************
Bus no: 5G

Driver: raja                    Arrival time: 9.00AM            Departure Time: 9.30AM

From: Vijayawada                To: Hyderabad
*****************************************************************************************************
_____________________________________________________________________________________________________

*****************************************************************************************************



                        1.Add new Bus Details:
                        2.Reserve your seats:
                        3.Show the available seats in a bus:
                        4.Buses Available Now:
                        5.Exit
*****************************************************************************************************

                        Enter your choice:-> 3
*****************************************************************************************************
Enter bus no: 5G
*****************************************************************************************************
```

```
**********************************************************************************************

Bus no:         5G
Driver:         raja                                    Arrival time:   9.00AM  Departure time:9.30AM
From:           Vijayawada                                      To:             Hyderabad
**********************************************************************************************

    1.      Empty    2.      Empty    3.      Empty    4.      Empty
    5.      Empty    6.      Empty    7.      Empty    8.      Empty
    9.      Empty   10.      Empty   11.      Empty   12.      Empty
   13.      Empty   14.      Empty   15.      Empty   16.      Empty
   17.      Empty   18.      Empty   19.      Empty   20.      Empty
   21.      Empty   22.      Empty   23.      Empty   24.      Empty
   25.      Empty   26.      Empty   27.      Empty   28.      Empty
   29.      Empty   30.      Empty   31.      Empty   32.      Empty

There are 32 seats empty in Bus No: 5G
**********************************************************************************************



                        1.Add new Bus Details:
                        2.Reserve your seats:
                        3.Show the available seats in a bus:
                        4.Buses Available Now:
                        5.Exit
**********************************************************************************************

                        Enter your choice:-> 2
**********************************************************************************************
Bus no: 5G

Seat Number: 12
Enter passanger's name, age and gender : Surya 18 Male

**********************************************************************************************



                        1.Add new Bus Details:
                        2.Reserve your seats:
                        3.Show the available seats in a bus:
                        4.Buses Available Now:
                        5.Exit
**********************************************************************************************

                        Enter your choice:-> 3
**********************************************************************************************
```

```
**********************************************************************************************
Enter bus no: 5G
**********************************************************************************************

Bus no:         5G
Driver:         raja                                    Arrival time:   9.00AM  Departure time:9.30AM
From:           Vijayawada                                      To:             Hyderabad
**********************************************************************************************

    1.      Empty    2.      Empty    3.      Empty    4.      Empty
    5.      Empty    6.      Empty    7.      Empty    8.      Empty
    9.      Empty   10.      Empty   11.      Empty   12.  Reserved
   13.      Empty   14.      Empty   15.      Empty   16.      Empty
   17.      Empty   18.      Empty   19.      Empty   20.      Empty
   21.      Empty   22.      Empty   23.      Empty   24.      Empty
   25.      Empty   26.      Empty   27.      Empty   28.      Empty
   29.      Empty   30.      Empty   31.      Empty   32.      Empty

There are 31 seats empty in Bus No: 5G
The seat no 12 is reserved for Surya.
**********************************************************************************************


                      1.Add new Bus Details:
                      2.Reserve your seats:
                      3.Show the available seats in a bus:
                      4.Buses Available Now:
                      5.Exit
**********************************************************************************************

                      Enter your choice:-> 5
**********************************************************************************************
Successfully Logged out from the Application. Visit Again!
< Thank You :) >
Created by Prishitha, Vaishnavi, Hima and Mahitha.

Process returned 0 (0x0)   execution time : 234.563 s
Press any key to continue.
```

Conclusion

- The project- SRM Bus Reservation System has been a great learning experience for all of us, we have learned a lot of new concepts with the help of this project.
- We have used class, to reduce the complexity of the program and by which every user can understand the code very easily.
- While developing this project, we used the concepts of classes, Arrays, and functions.
- The project has turned into reality through the combined efforts of our group.

The End