```cpp
#include <iostream>
using namespace std;
int main ()
{
 int noc;
 int tmp = 0;
 int simp = 0;
 int bemp;
 int p;
 int wt;
 double sum = 0;
 double avg;
 double iat;
 double bct;
 cout << "Enter number of customers" << endl;
 cin >> noc;
 cout << " We assume arrival time at 2PM " << endl;
 for (int i = 1; i <= noc; i++)
 {
 int n1;
 int n2;
 p = i;
 n1 = rand () % 100;
 if (n1 >= 0 && n1 <= 29)
{
 iat = 1;
 tmp = tmp + iat;
 cout << "The IAT is " << iat << endl;
 cout << "Hence the arrival time for customer is ";
 if (tmp < 10)
 cout << "2:" << "0" << tmp << endl;
 else
 cout << "2:" << tmp << endl;
}
 else if (n1 >= 30 && n1 <= 50)
{
 iat = 2;
 tmp = tmp + iat;
 cout << "The IAT is " << iat << endl;
 cout << "Hence the arrival time for customer is ";
 if (tmp < 10)
 cout << "2:" << "0" << tmp << endl;
 else
 cout << "2:" << tmp << endl;
}
 else if (n1 >= 51 && n1 <= 85)
{
 iat = 3;
 tmp = tmp + iat;
 cout << "The IAT is " << iat << endl;
 cout << "Hence the arrival time for customer is ";
 if (tmp < 10)
 cout << "2:" << "0" << tmp << endl;
 else
 cout << "2:" << tmp << endl;
}
 else if (n1 >= 86 && n1 <= 99)
{
 iat = 4;
 tmp = tmp + iat;
 cout << "The IAT is " << iat << endl;
 cout << "Hence the arrival time for customer is ";
 if (tmp < 10)
 cout << "2:" << "0" << tmp << endl;
 else
 cout << "2:" << tmp << endl;
```

```cpp
67    }
68    if (p == 1)
69    {
70    n2 = rand () % 100;
71    if (n2 >= 0 && n2 <= 29)
72    {
73    bct = 2;
74    cout << "The billing time is " << bct << endl;
75    cout << "Hence the billing time for customer is ";
76    cout << "2:" << "0" << iat + bct << endl;
77    }
78    else if (n2 >= 30 && n2 <= 50)
79    {
80    bct = 3;
81    cout << "The billing time is " << bct << endl;
82    cout << "Hence the billing time for customer is ";
83    cout << "2:" << "0" << iat + bct << endl;
84    }
85    else if (n2 >= 51 && n2 <= 85)
86    {
87    bct =5 ;
88    cout << "The billing time is " << bct << endl;
89    cout << "Hence the billing time for customer is ";
90    cout << "2:" << "0" << iat + bct << endl;
91    }
92    else if (n2 >= 86 && n2 <= 99)
93    {
94    bct = 7;
95    cout << "The billing time is " << bct << endl;
96    cout << "Hence the billing time for customer is ";
97    cout << "2:" << "0" << iat + bct << endl;
98    }
99    bemp = bct + iat;
100   }
101   else
102   {
103   n2 = rand () % 100;
104   if (n2 >= 0 && n2 <= 29)
105   {
106   bct = 5;
107   bemp = bemp + bct;
108   cout << "The billing time is " << bct << endl;
109   cout << "Hence the billing time for customer is ";
110   if (bemp < 10)
111   cout << "2:" << "0" << bemp << endl;
112   else
113   cout << "2:" << bemp << endl;
114   }
115   else if (n2 >= 30 && n2 <= 50)
116   {
117   bct = 6;
118   bemp = bemp + bct;
119   cout << "The billing time is " << bct << endl;
120   cout << "Hence the billing time for customer is ";
121   if (bemp < 10)
122   cout << "2:" << "0" << bemp << endl;
123   else
124   cout << "2:" << bemp << endl;
125   }
126   else if (n2 >= 51 && n2 <= 85)
127   {
128   bct = 7;
129   bemp = bemp + bct;
130   cout << "The billing time is " << bct << endl;
131   cout << "Hence the billing time for customer is ";
132   if (bemp < 10)
```

```cpp
133    cout << "2:" << "0" << bemp << endl;
134     else
135    cout << "2:" << bemp << endl;
136     }
137     else if (n2 >= 86 && n2 <= 99)
138     {
139     bct = 8;
140     bemp = bemp + bct;
141     cout << "The billing time is " << bct << endl;
142     cout << "Hence the billing time for customer is ";
143     if (bemp < 10)
144    cout << "2:" << "0" << bemp << endl;
145     else
146    cout << "2:" << bemp << endl;
147     }
148     }
149     if (p == 1)
150    {
151     int num3 = rand () % 100;
152     int sct;
153     if (num3 >= 0 && num3 <= 29)
154     {
155     sct = 3;
156     cout << "The service time is " << sct << endl;
157     cout << "Hence the service time for customer is ";
158     if (iat + bct + sct < 10)
159    cout << "2:" << "0" << iat + bct + sct << endl;
160     else
161    cout << "2:" << iat + bct + sct << endl;
162     }
163     else if (n2 >= 30 && n2 <= 54)
164     {
165     sct = 5;
166     cout << "The service time is " << sct << endl;
167     cout << "Hence the service time for customer is ";
168     if (iat + bct + sct < 10)
169    cout << "2:" << "0" << iat + bct + sct << endl;
170     else
171    cout << "2:" << iat + bct + sct << endl;
172     }
173     else if (n2 >= 55 && n2 <= 89)
174     {
175     sct = 6;
176     cout << "The service time is " << sct << endl;
177     cout << "Hence the service time for customer is ";
178     if (iat + bct + sct < 10)
179    cout << "2:" << "0" << iat + bct + sct << endl;
180     else
181    cout << "2:" << iat + bct + sct << endl;
182     }
183     else if (n2 >= 90 && n2 <= 99)
184     {
185     sct = 7;
186     cout << "The billing time is " << sct << endl;
187     cout << "Hence the billing time for customer is ";
188     if (iat + bct + sct < 10)
189    cout << "2:" << "0" << iat + bct + sct << endl;
190     else
191    cout << "2:" << iat + bct + sct << endl;
192     }
193     cout << "The total wt for the customer is " <<
194     bct + sct << endl;
195     cout << "\n";
196     simp = iat + bct + sct;
197     sum = sum + iat + bct + sct;
198    }
```

```cpp
199    else
200    {
201    int num3 = rand () % 100;
202    int sct;
203    if (num3 >= 0 && num3 <= 29)
204    {
205    sct = 5;
206    simp = simp + sct;
207    cout << "The service time is " << sct << endl;
208    cout << "Hence the service time for customer is ";
209    if (simp < 10)
210    cout << "2:" << "0" << simp << endl;
211    else
212    cout << "2:" << simp << endl;
213    }
214    else if (n2 >= 30 && n2 <= 54)
215    {
216    sct = 6;
217    simp = simp + sct;
218    cout << "The service time is " << sct << endl;
219    cout << "Hence the service time for customer is ";
220    if (simp < 10)
221    cout << "2:" << "0" << simp << endl;
222    else
223    cout << "2:" << simp << endl;
224    }
225    else if (n2 >= 55 && n2 <= 85)
226    {
227    sct = 7;
228    simp = simp + sct;
229    cout << "The service time is " << sct << endl;
230    cout << "Hence the service time for customer is ";
231    if (simp < 10)
232    cout << "2:" << "0" << simp << endl;
233    else
234    cout << "2:" << simp << endl;
235    }
236    else if (n2 >= 86 && n2 <= 99)
237    {
238    sct = 10;
239    simp = simp + sct;
240    cout << "The service time is " << sct << endl;
241    cout << "Hence the service time for customer is ";
242    if (simp < 10)
243    cout << "2:" << "0" << simp << endl;
244    else
245    cout << "2:" << simp << endl;
246    }
247    wt = simp - tmp;
248    cout << "The total waiting time for the customer is " << wt
249    << endl;
250    sum = sum + wt;
251    cout << "\n";
252    }
253    }
254    cout << "The sum of all the waiting times is " << sum << endl;
255    avg = double (sum / noc);
256    cout << "The average of all the waiting times is " << avg << endl;
257    }
```