```cpp
/*Assignment : collision resolution linear probing chaining , without chaining (with and without
replacement)
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===============================================================================
*/
#include<iostream>
#include<stdlib.h>
using namespace std;
class hashing
{
int hash_t[10]={-1,-1,-1,-1,-1,-1,-1,-1,-1,-1};
int hash_t_with[10]={-1,-1,-1,-1,-1,-1,-1,-1,-1,-1};
int count,count_with;
public:
hashing()
{
count=0;
count_with=0;
}
void without_insert(int val);
void with_insert(int val);
void display();
};
void hashing::without_insert(int val)
{
int key;
key=val%10;
if(hash_t[key]==-1)
{
hash_t[key]=val;
```

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count++;
}
else
{
for(int i=key+1;i<14;i++)
{
if(count!=10&&i==10)
{
i=-1;
}
else if(count!=10&&hash_t[i]==-1)
{
hash_t[i]=val;
count++;
break;
}
else if(count==10)
{
cout<<"\nIt is full You cannot enter data:-";
break;
}
else
{
continue;
}
}
}
}
void hashing::with_insert(int val)
{
int key,temp;
```

```
key=val%10;

if(hash_t_with[key]==-1)

{

hash_t_with[key]=val;

count_with++;

}

else

{

temp=hash_t_with[key];

hash_t_with[key]=val;


for(int i=key+1;i<14;i++)

{

cout<<i;

if(count!=10&&hash_t_with[i]==-1)

{

hash_t_with[i]=temp;

count_with++;

break;

}

else if(count!=10&&i==10)

{

i=-1;

}

else if(count==10)

{

cout<<"\nIt is full You cannot enter data:-";

break;

}

else

{
```

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continue;

}

}

}

}

void hashing::display()

{

cout<<"*******************************"<<endl;

cout<<" | "<<"Without"<<"\t|\t"<<"With"<<" | "<<endl;

cout<<"*******************************"<<endl;

for(int j=0;j<=9;j++)

{

cout<<" | \t"<<hash_t[j]<<"\t|\t"<<hash_t_with[j]<<" | "<<endl;

}

cout<<"*******************************"<<endl;

}

int main()

{

hashing sk;

int data,ch,choice=1,option;

do

{

cout<<"\n1.Linear Probing With and Without replacement\n2.Display\n3.Exit\nPlease enter
yourchoice: ";

cin>>option;

switch(option)

{

case 1:

{

do

{
```

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cout<<"\nEnter Students marks: :";

cin>>data;

sk.without_insert(data);

sk.with_insert(data);

cout<<"\nDo you want to enter data press 1 for continue and 0 for exit: ";

cin>>ch;

}while(ch!=0);

break;

}

case 2:

{

sk.display();

break;

}

case 3:

{

choice=0;

break;

}

default:

{

cout<<"You have enter the wrong option plese enter again:";

break;

}

}

}while(choice!=0);

return 0;

}
```

```
C:\Users\yashi\Desktop\ADS\practical\hashing.exe

1.Linear Probing With and Without replacement
2.Display
3.Exit
Please enter yourchoice: 1

Enter Students marks: :9

Do you want to enter data press 1 for continue and 0 for exit: 1

Enter Students marks: :99
100
Do you want to enter data press 1 for continue and 0 for exit: 1

Enter Students marks: :69
1001
Do you want to enter data press 1 for continue and 0 for exit: 1

Enter Students marks: :49
10012
Do you want to enter data press 1 for continue and 0 for exit: 0

1.Linear Probing With and Without replacement
2.Display
3.Exit
Please enter yourchoice: 2
***********************************
| Without    |      With |
***********************************
|      99    |      9 |
|      69    |     99 |
|      49    |     69 |
|      -1    |     -1 |
|      -1    |     -1 |
|      -1    |     -1 |
|      -1    |     -1 |
|      -1    |     -1 |
|      -1    |     -1 |
|       9    |     49 |
***********************************

1.Linear Probing With and Without replacement
2.Display
3.Exit
Please enter yourchoice: _
```