

The image shows the Eclipse IDE interface. The top toolbar contains icons for Run, Debug, and other development actions. Below the toolbar, several source files are open in tabs: test1.cpp, H34086149_hw6_3.cpp, H34086149_hw8_1.cpp, H34086149_hw8_2.cpp, and H34086149_hw8_challenge.cpp. The active file, H34086149_hw8_1.cpp, contains C++ code for a number-guessing game. The code includes headers for iostream, cstdlib, and ctime, and uses the std namespace. It defines a game status enum and a main function that generates a random number and prompts the user to guess it. The console at the bottom shows the output of the program, indicating that the user has successfully guessed the number after 8 attempts and knows the secret.

```
1 //=====
2 // Name      : H34086149_hw6_3.cpp
3 // Author    : mr.NTD
4 // Version   :
5 // Copyright : Your copyright notice
6 // Description : 5.34
7 //=====
8
9 #include <iostream>
10 #include <cstdlib>
11 #include <ctime>
12 using namespace std;
13
14 int ans, guess, ctr = 0;
15 char playAgain;
16
17 enum status{Lucky, knowSecret, doBetter};
18 status gameStatus;
19
20 int main() {
21     srand((unsigned int) time(NULL));
22     do
23     {
24         ans = rand() % 1000 + 1;
25         cout << "I have a number between 1 and 1000.\n";
26         cout << "Can you guess my number?\n";
27         cout << "Please type your first guess.\n";
28         ctr = 0;
29         while(cin >> guess)
30         {
31             ctr++;
32             if(guess > ans)
33                 continue;
34             if(guess < ans)
35                 continue;
36             if(guess == ans)
37             {
38                 gameStatus = Lucky;
39                 cout << "Excellent! You guessed the number!\n";
40                 cout << "You guess " << ctr << " times.\n";
41                 cout << "Ahah! You know the secret!\n";
42                 cout << "Would you like to play again (y or n)?\n";
43                 playAgain = 'y';
44                 while(playAgain != 'y' && playAgain != 'n')
45                     playAgain = ' ';
46                 if(playAgain == 'n')
47                     return 0;
48                 continue;
49             }
50         }
51     } while(playAgain == 'y');
```

Problems Tasks Properties Console

H34086149_hw8_1.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_1\Debug\H34086149_hw8_1.exe (2019/11/12 下午10:13)

587
Excellent! You guessed the number!
You guess 8 times
Ahah! You know the secret!
Would you like to play again (y or n)?

Writable Smart Insert 12:21

```
test1.cpp H34086149_hw6_3.cpp H34086149_hw8_1.cpp H34086149_hw8_2.cpp H34086149_hw8_challenge.cpp
30 {
31     ctr++;
32     if(guess > ans)
33         cout << "Too high. Try again.\n";
34     else if(guess < ans)
35         cout << "Too low. Try again.\n";
36     else
37     {
38         cout << "Excellent! You guessed the number!\n";
39         cout << "You guess " << ctr << " times\n";
40         if(ctr < 10)
41             gameStatus = lucky;
42         else if(ctr == 10)
43             gameStatus = knowSecret;
44         else
45             gameStatus = doBetter;
46         switch(gameStatus)
47         {
48             case lucky:
49                 cout << "Ahah! You know the secret!\n";
50                 break;
51             case knowSecret:
52                 cout << "Either you know the secret or you got lucky\n";
53                 break;
54             default:
55                 cout << "You should be able to do better!\n";
56                 break;
57         }
58         cout << "Would you like to play again (y or n)?\n";
59         cin >> playAgain;
60         break;
61     }
62 }
```

H34086149_hw8_1.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_1\Debug\H34086149_hw8_1.exe (2019/11/12 下午10:13)

587

Excellent! You guessed the number!

You guess 8 times

Ahah! You know the secret!

Would you like to play again (y or n)?

```
test1.cpp H34086149_hw6_3.cpp H34086149_hw8_1.cpp H34086149_hw8_2.cpp H34086149_hw8_challenge.cpp
35         cout << "Too low. Try again.\n";
36     else
37     {
38         cout << "Excellent! You guessed the number!\n";
39         cout << "You guess " << ctr << " times\n";
40         if(ctr < 10)
41             gameStatus = lucky;
42         else if(ctr == 10)
43             gameStatus = knowSecret;
44         else
45             gameStatus = doBetter;
46         switch(gameStatus)
47         {
48             case lucky:
49                 cout << "Ahah! You know the secret!\n";
50                 break;
51             case knowSecret:
52                 cout << "Either you know the secret or you got lucky\n";
53                 break;
54             default:
55                 cout << "You should be able to do better!\n";
56                 break;
57         }
58         cout << "Would you like to play again (y or n)?\n";
59         cin >> playAgain;
60         break;
61     }
62 }
63 }while(playAgain == 'y');
64 return 0;
65 }
66
```

H34086149_hw8_1.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_1\Debug\H34086149_hw8_1.exe (2019/11/12 下午10:13)

587

Excellent! You guessed the number!

You guess 8 times

Ahah! You know the secret!

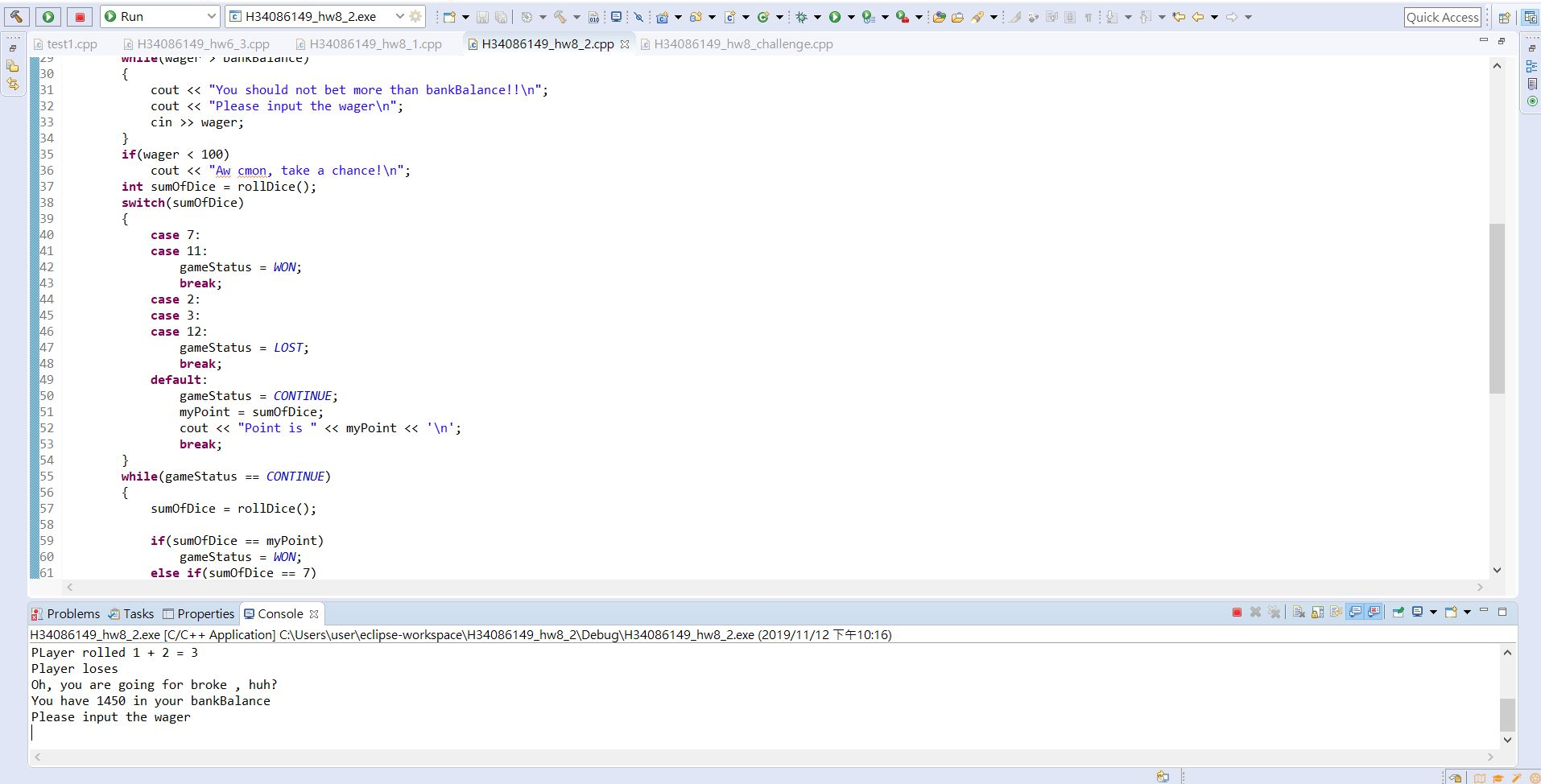
Would you like to play again (y or n)?

```
1 //=====
2 // Name      : H34086149_hw8_2.cpp
3 // Author    : mr.NTD
4 // Version   :
5 // Copyright : Your copyright notice
6 // Description:
7 //=====
8
9 #include <iostream>
10 #include <cstdlib>
11 #include <ctime>
12 using namespace std;
13
14 int rollDice();
15
16 int bankBalance = 1000, wager;
17
18 int main() {
19     enum Status { CONTINUE, WON, LOST};
20     int myPoint;
21     Status gameStatus;
22     srand((unsigned int) time(NULL));
23     while(true)
24     {
25         cout << "Please input the wager\n";
26         if(bankBalance > 2000)
27             cout << "You're up big. Now's the time to cash in your chips!\n";
28         cin >> wager;
29         while(wager > bankBalance)
30         {
31             cout << "You should not bet more than bankBalance!!\n";
32             cout << "Please input the wager\n";
33         }
34     }
35 }
```

Problems Tasks Properties Console

H34086149_hw8_2.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_2\Debug\H34086149_hw8_2.exe (2019/11/12 下午10:16)

Player rolled 1 + 2 = 3
Player loses
Oh, you are going for broke, huh?
You have 1450 in your bankBalance
Please input the wager
|

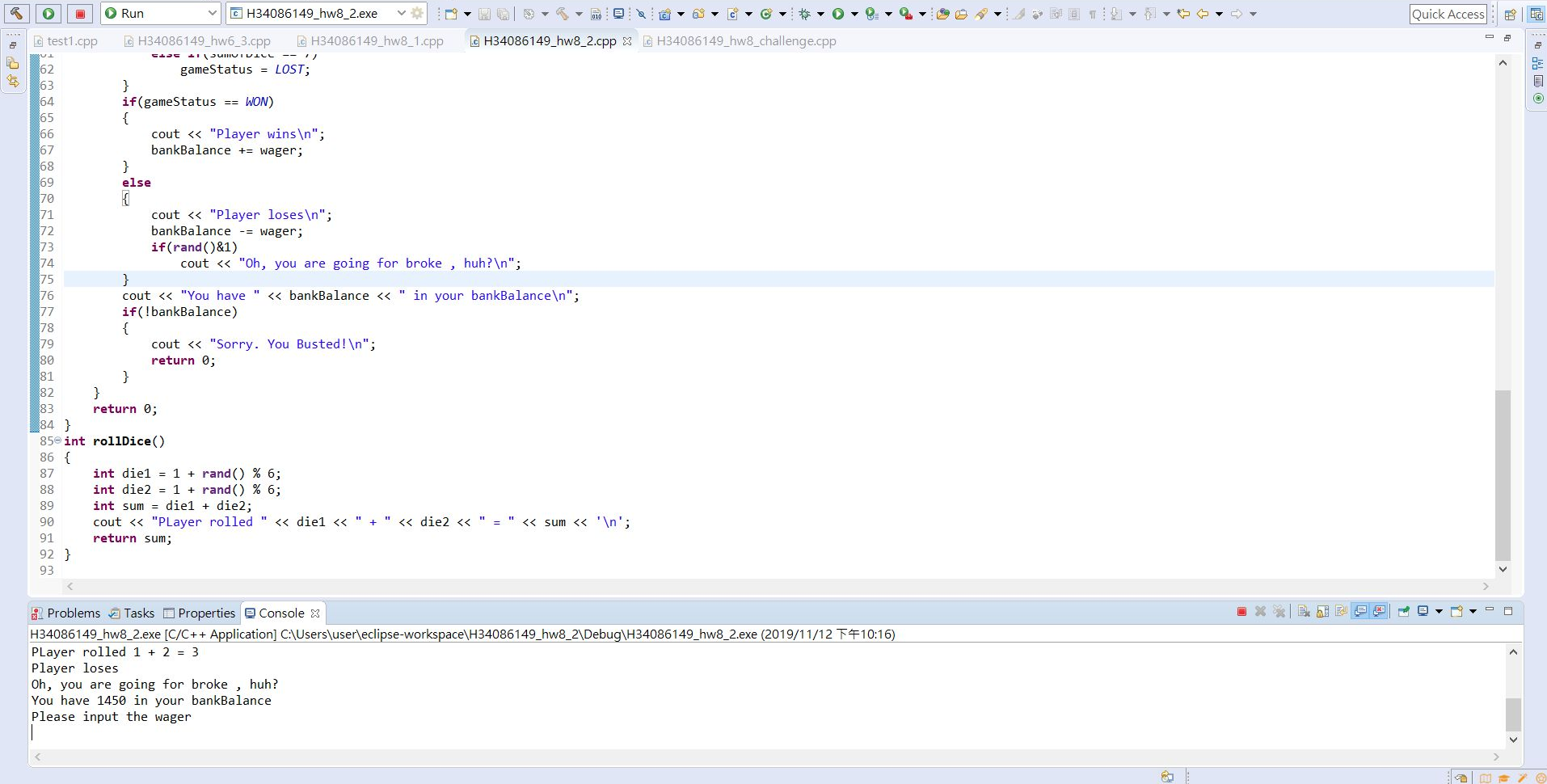


The screenshot shows the Eclipse IDE interface. The top toolbar contains various icons for file operations, editing, and running. The main editor displays the file `H34086149_hw8_2.cpp` with the following C++ code:

```
29 while(wager > bankBalance)
30 {
31     cout << "You should not bet more than bankBalance!!\n";
32     cout << "Please input the wager\n";
33     cin >> wager;
34 }
35 if(wager < 100)
36     cout << "Aw cmon, take a chance!\n";
37 int sumOfDice = rollDice();
38 switch(sumOfDice)
39 {
40     case 7:
41     case 11:
42         gameStatus = WON;
43         break;
44     case 2:
45     case 3:
46     case 12:
47         gameStatus = LOST;
48         break;
49     default:
50         gameStatus = CONTINUE;
51         myPoint = sumOfDice;
52         cout << "Point is " << myPoint << '\n';
53         break;
54 }
55 while(gameStatus == CONTINUE)
56 {
57     sumOfDice = rollDice();
58
59     if(sumOfDice == myPoint)
60         gameStatus = WON;
61     else if(sumOfDice == 7)
```

The bottom of the IDE shows the **Problems**, **Tasks**, **Properties**, and **Console** tabs. The **Console** tab is active, displaying the output of the program:

```
H34086149_hw8_2.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_2\Debug\H34086149_hw8_2.exe (2019/11/12 下午10:16)
Player rolled 1 + 2 = 3
Player loses
Oh, you are going for broke , huh?
You have 1450 in your bankBalance
Please input the wager
|
```



The screenshot shows the Eclipse IDE interface. The top toolbar contains various icons for file operations, editing, and running. The main editor window displays the file `H34086149_hw8_2.cpp` with the following C++ code:

```
62         gameStatus = LOST;
63     }
64     if(gameStatus == WON)
65     {
66         cout << "Player wins\n";
67         bankBalance += wager;
68     }
69     else
70     {
71         cout << "Player loses\n";
72         bankBalance -= wager;
73         if(rand() < 1)
74             cout << "Oh, you are going for broke , huh?\n";
75     }
76     cout << "You have " << bankBalance << " in your bankBalance\n";
77     if(!bankBalance)
78     {
79         cout << "Sorry. You Busted!\n";
80         return 0;
81     }
82     return 0;
83 }
84
85 int rollDice()
86 {
87     int die1 = 1 + rand() % 6;
88     int die2 = 1 + rand() % 6;
89     int sum = die1 + die2;
90     cout << "Player rolled " << die1 << " + " << die2 << " = " << sum << '\n';
91     return sum;
92 }
93
```

The bottom panel shows the **Console** tab with the following output:

```
H34086149_hw8_2.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_2\Debug\H34086149_hw8_2.exe (2019/11/12 下午10:16)
Player rolled 1 + 2 = 3
Player loses
Oh, you are going for broke , huh?
You have 1450 in your bankBalance
Please input the wager
|
```



```
1 //=====
2 // Name      : H34086149_hw8_challenge.cpp
3 // Author    : mr.NTD
4 // Version   :
5 // Copyright : Your copyright notice
6 // Description: Hello World in C++, Ansi-style
7 //=====
8
9 #include <bits/stdc++.h>
10 using namespace std;
11
12 vector<int>arr;
13 vector<pair<int,int>>group;
14 vector<vector<int>>ans;
15
16 void make_group()
17 {
18     if(arr.empty())
19     {
20         ans.push_back(arr);
21         return;
22     }
23     int pre = arr.front(), ctr = 1;
24     for(int i = 1; i < arr.size(); i++)
25     {
26         if(arr[i] == pre)
27             ctr++;
28         else
29         {
30             group.push_back(make_pair(pre,ctr));
31             pre = arr[i];
32             ctr = 1;
33         }
34     }
35 }
```

Problems Tasks Properties Console

<terminated> (exit value: 0) H34086149_hw8_challenge.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_challenge\Debug\H34086149_hw8_challenge.exe (2019/11/12 下午10:20)

Please input the set element:

1 2 2

subsets are :

2

2 2

1

```
test1.cpp H34086149_hw8_3.cpp H34086149_hw8_1.cpp H34086149_hw8_2.cpp H34086149_hw8_challenge.cpp
31     pre = arr[i];
32     ctr = 1;
33 }
34 }
35 group.push_back(make_pair(pre,ctr));
36 }
37 vector<int>temp;
38 void backtracking(const int n)
39 {
40     if(n == group.size())
41     {
42         ans.push_back(temp);
43         return;
44     }
45     backtracking(n+1);
46     for(int i = 0; i < group[n].second; i++)
47     {
48         temp.push_back(group[n].first);
49         backtracking(n+1);
50     }
51     for(int i = 0; i < group[n].second; i++)
52         temp.pop_back();
53 }
54 int main()
55 {
56     int x;
57     cout << "Please input the set element:\n";
58     while(cin >> x)
59         arr.push_back(x);
60     sort(arr.begin(),arr.end());
61     make_group();
62     backtracking(0);
63 }
```

<terminated> (exit value: 0) H34086149_hw8_challenge.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_challenge\Debug\H34086149_hw8_challenge.exe (2019/11/12 下午10:20)

```
2
2 2
1
1 2
1 2 2
```



```
43     return;
44 }
45 backtracking(n+1);
46 for(int i = 0; i < group[n].second; i++)
47 {
48     temp.push_back(group[n].first);
49     backtracking(n+1);
50 }
51 for(int i = 0; i < group[n].second; i++)
52     temp.pop_back();
53 }
54 int main()
55 {
56     int x;
57     cout << "Please input the set element:\n";
58     while(cin >> x)
59         arr.push_back(x);
60     sort(arr.begin(), arr.end());
61     make_group();
62     backtracking(0);
63     //sort(ans.begin(), ans.end());
64     cout << "subsets are :\n";
65     for(int i = 0; i < ans.size(); i++)
66     {
67         for(int j = 0; j < ans[i].size(); j++)
68             cout << ans[i][j] << ' ';
69         cout << '\n';
70     }
71 }
72 return 0;
73 }
74
```

<terminated> (exit value: 0) H34086149_hw8_challenge.exe [C/C++ Application] C:\Users\user\eclipse-workspace\H34086149_hw8_challenge\Debug\H34086149_hw8_challenge.exe (2019/11/12 下午10:20)

```
2
2 2
1
1 2
1 2 2
```