

```
// Answer on Question#38176 - Programming - C++
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main(int argc, char *argv[])  
{
```

```
    int number = 0;  
    int digits[3];
```

```
    // read a three digit number from console
```

```
    while (number < 100 || number > 999) {  
        cout<<"Enter a three digit number:\n";  
        cin>>number;  
    }
```

```
    // get 3 digits of the number
```

```
    digits[0] = number % 10;  
    digits[1] = (number / 10) % 10;  
    digits[2] = number / 100;
```

```
    // generate all different permutations
```

```
    cout<<"Permutations:\n";
```

```
    // all digits are the same
```

```
    if (digits[0] == digits[1] && digits[1] == digits[2]) {  
        cout<<number<<endl;
```

```
    }
```

```
    else {
```

```
        // all digits are different
```

```
        if (digits[0] != digits[1] && digits[1] != digits[2] && digits[2] !=  
digits[0]) {  
            cout<<digits[2] * 100 + digits[1] * 10 + digits[0]<<endl;  
            cout<<digits[2] * 100 + digits[0] * 10 + digits[1]<<endl;  
            cout<<digits[1] * 100 + digits[0] * 10 + digits[2]<<endl;  
            cout<<digits[1] * 100 + digits[2] * 10 + digits[0]<<endl;  
            cout<<digits[0] * 100 + digits[1] * 10 + digits[2]<<endl;  
            cout<<digits[0] * 100 + digits[2] * 10 + digits[1]<<endl;
```

```
        }
```

```
        else {
```

```
            // 2 digits are equal
```

```
            if (digits[0] == digits[1]) {  
                cout<<digits[2] * 100 + digits[1] * 10 + digits[0]<<endl;  
                cout<<digits[1] * 100 + digits[0] * 10 + digits[2]<<endl;  
                cout<<digits[1] * 100 + digits[2] * 10 + digits[0]<<endl;
```

```
            }
```

```
            else {
```

```
                if (digits[0] == digits[2]) {  
                    cout<<digits[2] * 100 + digits[1] * 10 + digits[0]<<endl;  
                    cout<<digits[2] * 100 + digits[0] * 10 + digits[1]<<endl;  
                    cout<<digits[1] * 100 + digits[0] * 10 + digits[2]<<endl;
```

```
                }
```

```
                else {
```

```
                    // digits[1] == digits[2]
```

```
                    cout<<digits[2] * 100 + digits[1] * 10 + digits[0]<<endl;  
                    cout<<digits[2] * 100 + digits[0] * 10 + digits[1]<<endl;  
                    cout<<digits[0] * 100 + digits[1] * 10 + digits[2]<<endl;
```

```
                }
```

```
            }
```

```
    }  
  }  
  cin.get(); cin.get();  
  return 0;  
}
```