

```
#include <iostream>
#include <iomanip>
#include <ctime>
```

```
int codeLength();
bool duplicates();
void dupCodeGen(int *, const int);
void noDupCodeGen(int *, const int);
void shuffle(int *, int);
void swap(int *, int *);
void input(int*, const int);
bool equal(int *, int *, const int);
void mastermind(int*, int*, int, int, const int);
```

```
int main()
```

```
srand(static_cast<time_t>(time(0)));
const int SIZE = codeLength();
bool dup = duplicates();
int red = 0, white = 0;

int *code = nullptr;
int *guess = nullptr;
code = new int[SIZE];
guess = new int[SIZE];
```

```
if(dup == true)
```

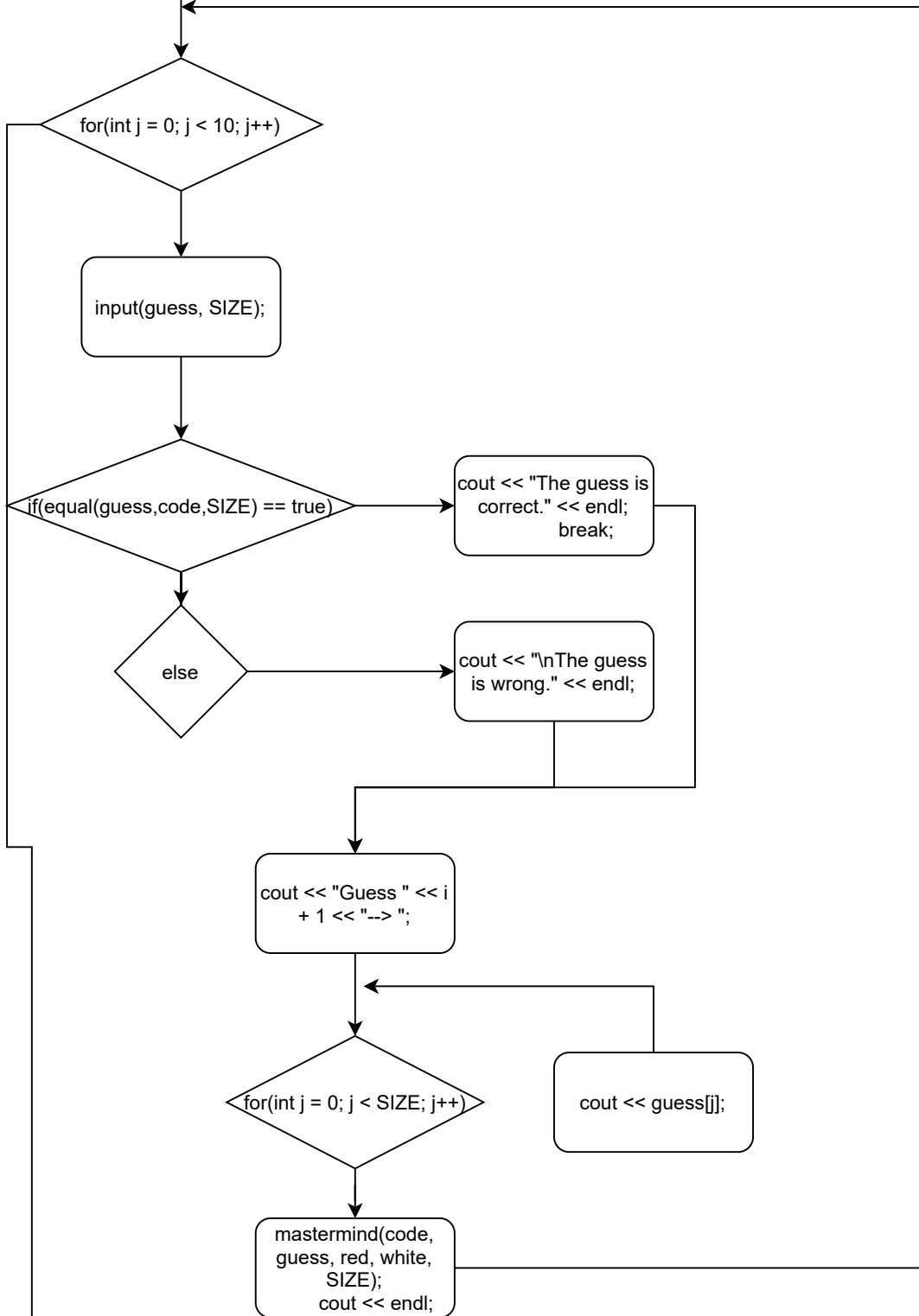
```
dupCodeGen(code,
SIZE);
```

```
else
```

```
noDupCodeGen(code,
SIZE);
```

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