Exercise 10

Exception

- There is a program which reads equation with 2 integer arguments and 1 operator, and prints out the answer
- The program terminates when `quit` is entered
- Handle Exceptions for 3 cases :
  - Division by zero
  - Argument is not an integer form
  - There is no operator in Equation
- Create a Exception classes that catch each exception.
- When exception occurs, print out message for each exception and terminate
  - Division by zero : `You are dividing integer with zero!`
  - Argument is not an integer form : `Argument is not in integer form!`
  - There is no operator in Equation : `Not an Equation!`

Main code

```
#include <iostream>
#include <cstdlib>
#include <string>

using namespace std;

int main() {
 string s;
 string arg1, arg2;

 // TODO : check each argument(arg1,arg2) is "int type", which means there is no any other letters than 0-9.
 //      Catch the exception with exception handler
 //     There is no empty space in equation
 // TODO : Check for 'division by zero' with exception handler
 while (true) {
  cout << "Enter the equation(+,-,*,/,%) : ";
  getline(cin, s);

  if (s.find("+") != string::npos) {
   arg1 = s.substr(0, s.find("+"));
   arg2 = s.substr(s.find("+") + 1, s.length());
   int farg = atoi(arg1.c_str());
   int sarg = atoi(arg2.c_str());
   cout << farg + sarg << endl;
  }
  else if (s.find("-") != string::npos) {
   arg1 = s.substr(0, s.find("-"));
   arg2 = s.substr(s.find("-") + 1, s.length());
   int farg = atoi(arg1.c_str());
   int sarg = atoi(arg2.c_str());
   cout << farg - sarg << endl;
  }
  else if (s.find("*") != string::npos) {
   arg1 = s.substr(0, s.find("*"));
   arg2 = s.substr(s.find("*") + 1, s.length());
   int farg = atoi(arg1.c_str());
   int sarg = atoi(arg2.c_str());
   cout << farg * sarg << endl;
  }
  else if (s.find("/") != string::npos) {
   arg1 = s.substr(0, s.find("/"));
   arg2 = s.substr(s.find("/") + 1, s.length());
   int farg = atoi(arg1.c_str());
   int sarg = atoi(arg2.c_str());
   cout << farg / sarg << endl;
  }
  else if (s.find("%") != string::npos) {
   arg1 = s.substr(0, s.find("%"));
   arg2 = s.substr(s.find("%") + 1, s.length());
   int farg = atoi(arg1.c_str());
   int sarg = atoi(arg2.c_str());
   cout << farg % sarg << endl;
  }
  else if (s == "quit") {
   break;
  }
  else {
   // TODO : Use appropriate exception that you've defined.
  }
 }
 return 0;
}
```

Input

```
12+34
3/0
asdf+zxcv
helloworld
```

Output(ignoring printed strings)

```
46
You are dividing integer with zero!
Argument is not in integer form!
Not an Equation!
```