**Homework 7 컴퓨터공학부 202211390 최준원**

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| Q1 |
| Source Code |
| #include "time.h"  #include <iostream>  #include <exception>  using namespace std;  class HExcept : public exception {  public:  HExcept();  string message();  };  HExcept::HExcept()  :exception()  {  }  string HExcept::message() {  return "Hours cannot be negative.";  }  class MExcept : public out\_of\_range {  public:  MExcept();  string message();  };  MExcept::MExcept()  :out\_of\_range("")  {  }  string MExcept::message() {  return "Minutes need to be between 0 to 59.";  }  class SExcept : public bad\_alloc {  public:  SExcept();  string message();  };  SExcept::SExcept()  :bad\_alloc()  {  }  string SExcept::message() {  return "Seconds need to be between 0 to 59.";  }  class TimeError : HExcept, MExcept, SExcept {  private:  int errorType;  public:  TimeError(int errorType);  string message();  };  TimeError::TimeError(int err)  : errorType(err)  {  }  string TimeError::message() {  if (errorType == 1) {  HExcept HExcept;  return HExcept.message();  }  else if (errorType == 2) {  MExcept MExcept;  return MExcept.message();  }  else {  SExcept SExcept;  return SExcept.message();  }  }  class Time{  private:  int hours;  int minutes;  int seconds;  public:  Time(int h, int m, int s);  ~Time();  int InSeconds();  void print() const;  void normalize();  };  Time::Time(int h, int m, int s)  try : hours(h), minutes(m), seconds(s)  {  if (hours < 0) {  throw TimeError(1);  }  else if (minutes < 0 || minutes > 59) {  throw TimeError(2);  }  else if(seconds < 0 || seconds > 59){  throw TimeError(3);  }  }  catch (...) {  throw;  }  Time::~Time()  {  }  int Time::InSeconds() {  return seconds + minutes \* 60 + hours \* 3600;  }  int main() {  int h, m, s;  //Set1  cout << "Enter data for set 1 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time Time1(h, m, s);  cout << "Result for set 1: " << Time1.InSeconds() << " seconds." << endl;  }  catch (TimeError &e) {  cout << "Exception for set 1: " << e.message() << endl;  }  //Set2  cout << "Enter data for set 2 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time Time2(h, m, s);  cout << "Result for set 2: " << Time2.InSeconds() << " seconds." << endl;  }  catch (TimeError &e) {  cout << "Exception for set 2: " << e.message() << endl;  }  //Set 3  cout << "Enter data for set 3 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time Time3(h, m, s);  cout << "Result for set 3: " << Time3.InSeconds() << " seconds." << endl;  }  catch (TimeError &e) {  cout << "Exception for set 3: " << e.message() << endl;  }  //Set 4  cout << "Enter data for set 4 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time Time4(h, m, s);  cout << "Result for set 4: " << Time4.InSeconds() << " seconds." << endl;  }  catch (TimeError &e) {  cout << "Exception for set 4: " << e.message() << endl;  }  //Set 5  cout << "Enter data for set 5 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time Time5(h, m, s);  cout << "Result for set 5: " << Time5.InSeconds() << " seconds." << endl;  }  catch (TimeError& e) {  cout << "Exception for set 5: " << e.message() << endl;  }  cout << endl;  cout << "#-- Custom Test Cases --" << endl;  //Test Case 1  cout << "Enter data for Test Case 1 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time TestTime1(h, m, s);  cout << "Result for Test Case 1: " << TestTime1.InSeconds() << " seconds." << endl;  }  catch (TimeError& e) {  cout << "Exception for Test Case 1: " << e.message() << endl;  }  //Test Case 2  cout << "Enter data for Test Case 2 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time TestTime2(h, m, s);  cout << "Result for Test Case 2: " << TestTime2.InSeconds() << " seconds." << endl;  }  catch (TimeError& e) {  cout << "Exception for Test Case 2: " << e.message() << endl;  }  //Test Case 3  cout << "Enter data for Test Case 3 (hour minutes seconds): ";  cin >> h;  cin >> m;  cin >> s;  try {  Time TestTime3(h, m, s);  cout << "Result for Test Case 3: " << TestTime3.InSeconds() << " seconds." << endl;  }  catch (TimeError& e) {  cout << "Exception for Test Case 3: " << e.message() << endl;  }  cout << endl;  return 0;  } |
| Screenshot |
| 텍스트, 스크린샷, 폰트, 흑백이(가) 표시된 사진  자동 생성된 설명 |

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| Q2 |
| Code |
| #include <iostream>  #include <exception>  #include <string>  using namespace std;  int main() {  int c;  string str = "ABCEDFGHIJKLMNOPQRSTUVWXYZ";  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  cout << endl;  cout << "#-- Custom Test Cases --" << endl;  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  cout << "Enter the index of character to see: ";  cin >> c;  try {  cout << "Character is: " << str.at(c - 1) << endl;  }  catch (exception& e) {  cout << "There is no character at position " << c << " in English alphabet!" << endl;  }  return 0;  } |
| Screenshot |
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