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# Solution

## Simplest Solution

A possible solution is shared [in this archive](https:/princomp.github.io/code/projects/Bookmarker.zip):

﻿using System;  
  
class Bookmarker  
{  
 public string Title { get; set; }  
 private int tPages; // Total number of pages.  
 public int TPages // The property will check that the total number of page is "valid"  
 {  
 set  
 {  
 if (value <= 0) // This will throw an error if the value passed is negative.  
 throw new ArgumentException(  
 "The total number of pages cannot be negative."  
 );  
 else if (value < cPages) // This will throw an error if the value passed is less than the current page.  
 throw new ArgumentException(  
 "The total number of pages cannot be less than the current page."  
 );  
 else  
 tPages = value; // If no errors were thrown, we set the value to the value passed.  
 }  
 get { return tPages; }  
 }  
 private int cPages; // Current page  
 public int CPages // The property will check that the current number of page is "valid"  
 {  
 set  
 {  
 if (value < 0)  
 throw new ArgumentException(  
 "You cannot have read a negative number of pages!"  
 );  
 else if (value > tPages)  
 {  
 throw new ArgumentException(  
 "You cannot have read more than the total number of pages!"  
 );  
 }  
 else  
 cPages = value;  
 }  
 get { return cPages; }  
 }  
  
 public Bookmarker(string titleP, int tPagesP, int cPagesP)  
 {  
 Title = titleP;  
 TPages = tPagesP;  
 CPages = cPagesP;  
 }  
  
 public override string ToString()  
 {  
 return $"You have read {((double)cPages / tPages):P} of \"{Title}\".\nYou have {(1 - ((double)cPages / tPages)):P} to go!";  
 }  
  
 public void Read(int pReadP)  
 {  
 if (pReadP + cPages > tPages)  
 throw new ArgumentException(  
 "You cannot have read more than the total number of pages!"  
 );  
 else  
 cPages += pReadP;  
 }  
}

﻿using System;  
  
class Program  
{  
 static void Main()  
 {  
 string title,  
 tPages,  
 cPages;  
 /\*  
 \* To trigger failure to create the object,  
 \* test with the following values:  
 \*/  
 // "Random", "Test", "0" to get "Input string was not in a correct format."  
 // "Random", "-12", "0" to get "The total number of pages cannot be negative."  
 // "Random", "12", "Test" to get "Input string was not in a correct format."  
 // "Random", "12", "15" to get "You cannot have read more than the total number of pages!  
 // "Random", "12", "-12" to get "You cannot have read a negative number of pages!"  
 /\*  
 \* To trigger error when calling the "Read" method,  
 \* test with the following values, after having created an object  
 \* using "Test", "10", "5"  
 \*/  
 // "6" to get "You cannot have read more than the total number of pages!"  
 // "-3" to get "Input string was not in a correct format."  
 // "Test" to get "Input string was not in a correct format."  
 /\*  
 \* An additional test would be to add, for example  
 \* book1.TPages = "3";  
 \* after  
 \* Console.WriteLine(book1);  
 \* to make sure that setting the number of page to an "invalid"  
 \* value would trigger the error  
 \* "The total number of pages cannot be less than the current page."  
 \*/  
  
 try  
 {  
 Console.WriteLine("Enter the title of the book.");  
 title = Console.ReadLine();  
 Console.WriteLine("Enter the total number of pages.");  
 tPages = Console.ReadLine();  
 Console.WriteLine(  
 "Enter the page you stopped your reading at."  
 );  
 cPages = Console.ReadLine();  
 Bookmarker book1 = new Bookmarker(  
 title,  
 int.Parse(tPages),  
 int.Parse(cPages)  
 );  
 Console.WriteLine(book1);  
 Console.WriteLine("How many pages did you read?");  
 book1.Read(int.Parse(Console.ReadLine()));  
 Console.WriteLine(book1);  
 }  
 catch (Exception ex)  
 {  
 Console.WriteLine(ex.Message);  
 }  
 }  
}

[*(Download this code)*](https:/princomp.github.io/code/projects/Bookmarker.zip)

A solution completing the bonus

“Have your class handle strings, so that, for example, your Bookmarker constructor would take three strings as input”

is shared [in this archive](https:/princomp.github.io/code/projects/Bookmarker_with_strings.zip):