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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):