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Assessment: IRanges

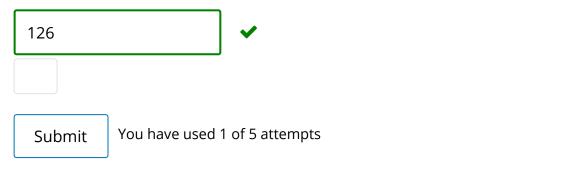
Q1: Operating on ranges: zooming with *

1/1 point (graded)

In the previous video we saw a number of functions for manipulating interval ranges:

This is just a subset of all the possible operations, and remember, the rest are documented in the help pages mentioned in the video and in the book page. We will first do a simple review of these operations, so that you get a sense of using them in your R console. Then we will have a few questions which require more thought.

Load the **IRanges** package. Define an integer range starting at 101 and ending at 200. If we use the operation *2, this will zoom in, giving us a range with half the width. What is the starting point of the resulting range?



Q2: Narrowing

1/1 point (graded)

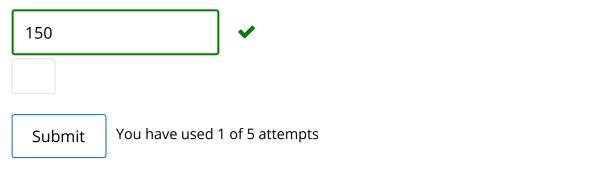
Define an integer range starting at 101 and ending at 200. If we use the operation <code>narrow(x, start=20)</code>, what is the new starting point of the range?



Q3: Expanding with +

1/1 point (graded)

Define an integer range starting at 101 and ending at 200. If we use the operation [+25], what is the width of the resulting range?

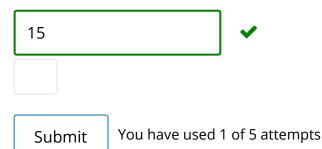


Q4: Range widths, vectorized

1/1 point (graded)

Define an IRanges with starts at 1,11,21 and ends at 3,15,27. width() gives the widths for each range.

What is the sum of the widths of all the ranges?



Q5: Visualizing and projecting ranges

1/1 point (graded)

Define an *IRanges* object, x, with the following set of ranges:

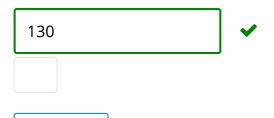
Starts at 101,106,201,211,221,301,306,311,351,361,401,411,501

Ends at 150,160,210,270,225,310,310,330,390,380,415,470,510

You have used 2 of 5 attempts

Plot these ranges using the plotRanges() function in the **ph525x** package. You can install this library, if you have not done so already, with the command <code>install_github("genomicsclass/ph525x")</code> .

What is the total width from 101 to 510 which is not covered by ranges in x?



Q6: Disjoint subranges

1/1 point (graded)

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By "disjoint ranges", we mean the following: for two ranges [1,10] and [6,15], there are three disjoint ranges contained within: [1,5], [6,10], and [11,15].

How many disjoint ranges are contained within the ranges in x from the previous question?



Q7: Resizing

1/1 point (graded)

An intra-range function we didn't show in the video is resize().

Set up a grid of 2 stacked plots:



Now use plotRanges() to plot the x from last question, as well as resize(x,1). You will have to set the xlim to make sure that the plots line up vertically. For example, you can use plotRanges(x, xlim=c(0,600)).

What is the best description for the operation resize(x,1)?

- It gives you just the starting point of each range.
- It resizes x so that each range in x can only overlap 1 other range in x.
- It resizes x into 1 large range.
- It gives you the ranges in x which are covered by more than 1 range.



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You have used 1 of 2 attempts

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