The Tube has been an integral part of London's history since 1863 and carry's 1.34 billion passengers a year. There are 270 stations on the 11 line network, with Waterloo being the busiest station carrying 95.1 million passengers per year.

The following tabular data shows the number of passengers who entered 20 stations on a typical day on the network in 2017. The table shows passenger numbers for January – June (inclusive) and July – December (inclusive).

Station	Jan - June			July - December		
	Entry Weekday	Entry Saturday	Entry Sunday	Entry Weekday	Entry Saturday	Entry Sunday
Acton Town	82736	68110	8019	74774	52945	5596
Angel	121455	37385	7474	69899	37517	6683
Arsenal	80209	69773	7108	76230	47597	8740
Baker Street	125723	67265	10404	117833	58554	10475
Camden Town	92182	78472	9241	61522	76710	6911
Charing Cross	134345	35697	9497	64657	33618	12420
Ealing Broadway	133013	43263	7949	77662	55706	13973
Earls Court	58076	37154	11020	116105	62048	9657
Elephant & Castle	56662	53679	5717	110983	31833	10021
Kilburn	54552	69391	7614	71962	45061	5608
Leicester Square	111888	54189	13312	84493	70134	9157
Liverpool Street	58770	31594	6690	125882	37793	9140
Oxford Circus	72090	74734	12621	136375	67009	10190
Paddington	54260	70581	11520	98079	51179	7388
Piccadilly Circus	86151	35927	7864	137898	53781	9235
Tooting	90115	50790	14238	126777	39705	6201
Vauxhall	80197	78242	8314	58952	73632	11765
Victoria	86331	46553	7957	76201	71271	10431
Wembley Park	105979	44171	8576	88696	64923	6355
Wimbledon	99391	52058	11319	123703	72293	11730

The table show entries for each of the 20 stations on a weekday, as well as Saturdays and Sundays.

You must write a Java application to do the following:

1. Represent the passenger information using a suitable data structure(s). You can generate random values for the number of entries for each station. The values you generate must be in the following ranges:
   - A weekday (in the range 50000 to 140000)
   - A Saturday (in the range 30000 to 80000)
   - A Sunday (in the range 5000 to 15000)
2. Display the passenger information neatly (see the output from my solution below).
3. Calculate and display which station was the busiest across the entire year (displaying the station name and the total number of passengers).
4. Calculate and display the percentage increase/decrease of passenger entries for each station. This percentage value must be based on the difference in passenger entries between both halves of the year. This value must be formatted to a maximum of two decimal places.

A sample run of my solution yielded the following output.

```
run:
                          Jan-Jun                            Jul-Dec
                   Weekday   Saturday   Sunday   |   Weekday   Saturday   Sunday
Acton Town         122912    31608      7093     |   122382    78798      5514
Angel              129865    49240      7131     |   123321    55982      14660
Arsenal            69371     66153      12893    |   94443     58213      11419
Baker Street       127185    34640      8969     |   103427    43440      6659
Camden Town        74735     37552      5783     |   52142     46382      14360
Charing Cross      90955     36397      13452    |   84633     76186      8349
Ealing Broadway    136028    32708      10994    |   125885    43979      13328
Earls Court        55386     61649      14892    |   79185     49518      10346
Elephant & Castle  127374    42806      13916    |   116476    43766      10238
Kilburn            89813     49311      9833     |   80573     30759      14319
Leicester Square   53624     73773      5948     |   121707    32083      14337
Liverpool Street   102533    57988      12247    |   66048     50895      6181
Oxford Circus      116991    70507      12212    |   53425     46196      13457
Paddington         136845    40304      7908     |   95447     56050      9931
Piccadilly Circus  77178     78238      8209     |   136931    56988      13407
Tooting            97431     71924      5240     |   53975     72395      14742
Vauxhall           126262    70637      6343     |   104631    30618      12445
Victoria           86994     68129      14063    |   133364    67351      5508
Wembley Park       57824     77658      11310    |   75010     31966      5133
Wimbledon          112471    67171      7015     |   58457     66615      11561
The busiest station is Angel with 380199 passengers

Percentage increase/decrease
Acton Town: 27.89%
Angel: 4.15%
Arsenal: 10.55%
Baker Street: -10.11%
Camden Town: -4.39%
Charing Cross: 20.14%
Ealing Broadway: 1.93%
Earls Court: 5.4%
Elephant & Castle: -7.4%
Kilburn: -15.65%
Leicester Square: 26.08%
Liverpool Street: -28.73%
Oxford Circus: -43.38%
Paddington: -12.77%
Piccadilly Circus: 26.71%
Tooting: -19.18%
Vauxhall: -27.33%
Victoria: 21.89%
Wembley Park: -23.63%
Wimbledon: -26.8%
BUILD SUCCESSFUL (total time: 1 second)
```

Marks Allocation	
Represent Data	15
Display passenger information neatly	30
Calculate and display the busiest station	20
Calculate and display the % incr\decr for each station	35
TOTAL	100%

You must have at least four methods (along with main) in your solution.

- Method one – to initialise the passenger information.
- Method two – to display the passenger information.
- Method three – to determine the busiest station.
- Method four – to calculate the percentage increase\decrease for each station.

Calculating a percentage increase/decrease.

Consider this example:

A college student has **21** timetabled hours in **1st** year.

Another college student has **24** timetabled hours in **2nd** year.

Calculate the percentage increase/decrease in hours from **1st** to **2nd** year.

Firstly, you must calculate the difference between the **2nd** year hours and the **1st** year hours.

24 – 21 = 3.

There has been an increase of **3** hours. If the calculation resulted in a negative number there would (obviously) have been a decrease.

Secondly, you need to work out the increase/decrease as a percentage of the **1st** year hours. Therefore, you must divide the increase/decrease by the **1st** year hours.

3 / 21 = .14

Thirdly, multiply the answer by 100.

.14 * 100 = 14.29

We can now say that there has been a **14.29%** increase in the number of timetabled hours in college that the student has.