At Jane Street, our day-to-day work involves figuring out what's happening in financial markets and building algorithms and systems to do better trades. This often presents us with challenging and interesting problems. However, many of us also enjoy solving puzzles and playing games for their own sake. One game (technically, class of games) we like to play is called Blotto. And we like to play with interesting rules! Here is one instance:

There are 10 castles, numbered 1, 2, 3, ... , 10, and worth 1, 2, 3, ... , 10 points respectively. You have 100 soldiers, which you can allocate between the castles however you wish. Your opponents also (independently) do the same.

3 strikes, you're Out! Castles are fought in order from 1 to 10. The number of soldiers on each castle is then compared, and for each castle, whoever has the most soldiers on that castle wins its points (in the case of a tie, no one gets points). However, as soon as one player wins 3 consecutive castles, they automatically win all the remaining Castles too.

For example, here is one match:

Castle	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
Alice	10	10	10	10	10	10	10	10	10	10
Beatrice	5	10	15	17	8	5	5	15	18	2

In this match, Alice wins castles 1, 5, 6, 7, 8, 9 and 10 for a score of 46 points, and Beatrice wins castles 3 and 4 for a score of 7 points. No-one wins castle 2 (it's a draw). Alice wins castles 8 and 9 because she has already won the 3 consecutive castles 5,6,7.

We're going to play a tournament. You get one entry and your final score is the average of your scores playing head-to-head against entries from several hundred Jane Streeters. You should try to maximise this average score.

An entry should be submitted as a list of 10 non-negative integers, adding up to 100, where the nth element is the number of units of resources being sent to castle n.

What's your entry? How did you go about coming up with it?

FAQ:

Q: Do you want me to use lots of complicated mathematics to answer this question?

A: We want you to come up with a good entry to the Blotto competition. If maths helps you do that then that's great, but we're not interested in any mathematical theory that isn't relevant to how you came up with your entry.

Q: Should I write a computer program to answer this question and should I include my code?

A: Some people take computational approaches to their Blotto entries, some people don't. Only include your code if you think that it will help us to understand your methodology better. If you do submit code, any language is fine.

Q: How much should I write?

A: You should aim to explain the process that you went through in 2 pages or less. If you really want to write a bit more, that's okay, but remember that we want to understand the process that you used and the reasoning behind it. Think carefully about what information will be most valuable for us.