

# Mäxchen

## 1 Abstract

This is a fully automized program that lets you play the game Mäxchen with or against other humans as well as bots. And - as every good game does - Mäxchen has cheat codes.

You never need to touch the code itself, everything is implemented within the menu. Enjoy!

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## 2 How the game works

### 2.1 The rules

Mäxchen is a turn-based game. Player A rolls two dices, where the larger one is the first and the smaller one the second digit of his number (e.g. Alpha rolls a 4 and a 6. The 6 is the first digit, the 4 the second digit, which results in his number being 64). The clue is: Only he knows what he rolled.

He then claims that he rolled a number – this claimed number can be higher, lower or equal to his rolled one, the important thing is that it is larger (in value, more on that later) than the number that was previously rolled or better the one that was claimed to be rolled.

Player B now has to decide. If B believes A, it's her turn to roll and the game goes on. However, if she doesn't believe A, the dices – and therefore the real number – gets revealed. If the claimed number has a higher value than the one A rolled, he got caught in a lie and loses points. If however the number has a lower value or is equal to what he rolled, he was falsely accused by B, therefore B loses points. Point loss is based on the number rolled, not the number claimed.

After this, a new round begins.

### 2.2 The values

Most numbers are ordered by their normal values. However, there are a few exceptions to this rule:

- A 42 is called a Hamburger and has the highest value overall (since it's the answer).
- A 21 is called a Mäxchen and has the second highest value, only behind the Hamburger (it's only half of the answer).
- Doubles have a higher value than any other normal number, but are below Mäxchen and Hamburger. The Doubles itself are ordered by their normal value, meaning that a 1-1 is smaller than a 2-2 which is smaller than a 3-3 and so on.

### 2.3 Point loss

The point loss is based on the number that is revealed, not the one that was claimed to be rolled.

- A revealed Hamburger inflicts 3 points.
- A revealed Mäxchen inflicts 2 points.
- Every other number just inflicts 1 point.

### 3 How to play

One heads-up:

After some tests, we are quite unsure why this happens, but the program seems to have some problems with the python shell from IDLE. We tested it in Pycharm as well as running it through the console which both works without any problems, but for some reasons Mäxchen doesn't like IDLE or vice-versa. So just use the console or PyCharm to get the full experience.

The game is pretty self-explanatory and has a user-friendly menu. Everytime you need to do something, you'll get asked to do so. Let's jump right in:

After starting the game, you will be greeted by this message:

```
To change a setting, simply type a number from 1 to 12 to change the according setting.
Type help to get an explanation of which number belongs to which setting.
To go directly to the game, type q.

Please remember that you can seriously fuck up the settings to the point of making the game unplayable.
This is entirely your responsibility and we recommend that you think about the impact on the game before changing any setting.☹

What do you want to do? █
```

Pretty self-explanatory, right? For more information on the settings, see chapter 4.

After setting up the rules you can start the game by typing "q". Before you can play, you have to set up the players. When asked, enter the number of players (including bots) and then each players name. And then let the fun begin! The play order is randomized and shown after entering every players name. You *can* give all your 50 players the same name, but you maybe won't know which player won at the end. The game however *will* know that the 42<sup>nd</sup> player won, so it doesn't need to care about your stupidity. For more information on bots, see chapter 5. For more information on cheats, see chapter 4.1.6.

The game will then guide you through the whole rotation of a turn (explained in chapter 2)

If a player has less than 1 point, he/she is out of the game. The other ones still play, until just one remains. This is the winner of the game! The tables with the points in all rounds are displayed at the end.

## 4 Settings and expansions

We will start with the expansions (most of them are covered in the settings anyway) so we get some out of the way already.

### 4.1 Expansions

#### 4.1.1 Reversing the order of players when revealing a Mäxchen or a Hamburger

This expansion reverses the turn order when a Mäxchen or a Hamburger is revealed. The `play_order` in the dictionary gets changed from 1 to -1 or from -1 to 1, which essentially means that – from the current player – the next player isn't the next one in the play order, but the previous one, and vice-versa.

Both settings can be adjusted by changing 9 (reverse Mäxchen) and 10 (reverse Hamburger) respectively. And you can set the play order to be reversed at the start by setting it to -1 in the settings (setting 4).

#### 4.1.2 One dice is the first digit, one the second, regardless of their value

This expansion is implemented in setting 3 (`order_digits`) and normally set to True. The game „throws dices“ by generating two random numbers between 1 and 6. If the setting is True, the larger digit will become the first one while the smaller one will be the second one. If the setting is False, the first will remain first and vice-versa.

This decreases the chance of throwing a Mäxchen or a Hamburger since there are more throwable numbers (1 and 2 will become 12 instead of 21 and so on).

#### 4.1.3 At least 5 changeable settings in the menu

There are currently 12 adjustable settings – see chapter 4.2.

#### 4.1.4 Visualize the thrown dice in the console

When the dices are revealed (somebody does not believe a number), the tossed number is shown as the dices. The mechanic is not that complex. Every digit from 1 to 6 has a representation on a dice, which are saved in `ui_help.py`. When they are needed, they can be displayed simply in 3 lines in the console.

#### 4.1.5 Game history of each players points after each round

It is interesting to see the evolution of the player points. For this, we implemented a statistic that is shown at the end of the game. For every player, a table is shown which displays the points in all rounds. Since a round – per definition – ends when a player doesn't believe another one – and therefore there is a point loss if there are no cheats – the table won't be extraordinarily long.

Otherwise, it could be very boring to read those tables. The tables are separated to increase the readability in case of veeeeeeeeery long names. If the round counter exceeds 9999, the tables start to get ugly, but still work. But who the hell would play 10k rounds of Mäxchen anyway?

Well... bots don't really have a choice...

#### 4.1.6 Cheats

In this game, you are able to cheat. When entering your name at game start, you just have to put the cheat code in front of your name. The cheat codes will not be part of your name later. Please keep in mind that cheats are case sensitive. Only one active code per game is possible.

The cheat codes are:

- HamToTheBurger: When using this cheat, you are playing with loaded dices. With a chance of 50% you toss a Hamburger (Standard rules: 42).
- MegaMax: This cheat works like the HamToTheBurger cheat, but instead of a Hamburger, a Mäxchen (Standard rules: 21) is tossed with a chance of 50%.
- GodKing: The user of this cheat becomes godlike. He/She is not able to lose any points, whatever happens.

#### 4.1.7 Bots

You can make a player be controlled by the computer by adding a #207 at the end of its name. Why #207? # for style, 207 stands for BOT whereas the B is the 2<sup>nd</sup> letter of the alphabet we use and 0 and 7 is Leet speak for O and T respectively. The bot will play fully autonomous after the preset behaviour.

For more information on bots, see chapter 5.

### 4.2 Settings

These are all the settings we added and a brief description on what they do:

#### 4.2.1 Mäxchen

This changes the value of the Mäxchen. Standard value is 21. Only integers are accepted, however you can set it to a value that is out of the possible range that can be rolled with 2 6-sided dices (like 69 or 420 or -5) to simply deactivate it since it can't be reached.

#### 4.2.2 Hamburger

This changes the value of the Hamburger. Standard value is 42. Only integers are accepted, however you can set it to a value that is out of the possible range that can be rolled with 2 6-sided dices (like 69 or 420 or -5) to simply deactivate it since it can't be reached.

### 4.2.3 order\_digits

This is used to tell the game if it should sort the dices that the larger one is the first digit and the smaller one the second or if it shouldn't. True means it does that. Standard value is True. Since it's a bool, you just need to tell the game to flip the value around. Used in 4.1.2.

### 4.2.4 play\_order

Be careful with that. This defines how large the „leap“ to the next player is. 1 is standard and means you „leap“ 1 player far, which is essentially the next player in the list. You can set it to -1 without any problems to reverse the play order, but any x with  $|x| \neq 1$  will lead to problems sooner or later, either because the game crashes because there aren't that many players left or because it's always your turn now (if it is 0 for example). If you want to do that, you can, the game won't stop you. It might just not be very clever to do so. Used in 4.1.1

### 4.2.5 points\_to\_start

This defines the points each player has at the start of the game. Standard is 10. Negative values or 0 will lead to an immediate end of the game since you get removed from the game as soon as you have less than 1 point.

### 4.2.6 point\_loss\_normal

The points you lose when a normal number (no Mäxchen or Hamburger) is revealed. Only integers accepted. Can be negative to give you points, but does that make sense to set? If it does, go for it. Standard is 1.

### 4.2.7 point\_loss\_mäxchen

The points you lose when a Mäxchen is revealed. Same conditions as in 4.2.6. Standard is 2.

### 4.2.8 point\_loss\_hamburger

The points you lose when a Hamburger is revealed. Same conditions as in 4.2.6 and 4.2.7. Standard is 3.

### 4.2.9 reverse\_mäxchen

If set to True, the play order is reversed when a Mäxchen is revealed. Used in 4.1.1.

### 4.2.10 reverse\_hamburger

If set to True, the play order is reversed when a Mäxchen is revealed. Used in 4.1.1.

#### **4.2.11 bot\_lie**

The bots strategy to determine which number it tells you. Can be set to normal, aggressive or safe. More on the strategies in chapter 5.

#### **4.2.12 bot\_believe**

The bots strategy to determine whether it believe what it got told or not. Can be set to naive, normal and suspicious.

More on the strategies in chapter 5



## 5 Bots

### 5.1 General

A player can be controlled by a bot by adding a #207 at the end of its name (more on that in 4.1.7). The bot plays autonomously after a preset strategy. If there are multiple bots, they all use the same preset. This was made to simplify the code a bit and discourage players from letting different bots with different settings play against each others rather than playing themselves.

### 5.2 How to lie as a bot

There are 3 settings: safe, normal and aggressive. To add a touch of human flavor, there is a chance for the bot to use another strategy than the predetermined one with the following chances (the columns are the predetermined strategy, the rows the used one):

	Safe	Normal	Aggressive
Safe	80%	15%	5%
Normal	15%	75%	10%
Aggressive	5%	10%	85%

But how do they work

#### 5.2.1 Safe

A safe strategy is to always pick a number that is below or equal the number you rolled, if this number is allowed. However, even the safe strategy has a 10% error margin where the number the bot tells is larger than the one it actually rolled. Why? Even when you wanna play safe, you can't always follow your strategy.

#### 5.2.2 Normal

A normal strategy just picks any number that fits the criteria of a number that is being claimed. This is truly random.

#### 5.2.3 Aggressive

The aggressive one also has a 10% error margin since it gets blind of too much rage. Outside of that, the number claimed will always be higher than the one rolled, simply to push the limits.

### 5.3 How to believe (or not) as a bot

Again, there are 3 settings: Naive, normal and suspicious. The distribution is the following (with the columns being the preset and the rows the used strategy):

	Naive	Normal	Suspicious
Naive	90%	10%	0%
Normal	10%	80%	10%
Suspicious	0%	10%	90%

How do they work?

Let me explain one concept we used here beforehand, since each of the 3 strategies uses this: Believability score. This concept is basically a statistical test. The bot generates 10,000 random numbers with the dices and tests them. If they are higher than or equal to the claimed number, the score goes up by 1. If not, it does not.

After that the bot divides the score by the number of iterations which essentially leads to the percentage of that specific number or a number of higher value being rolled. This is the base of our concept.

After tweaking that number a bit (making it larger for the naive bot and smaller for the suspicious one), we multiply it by 10,000, generate a random number and if the number is smaller than or equal to our new score, the bot is a believer, else he is not. This is essentially a longer way of creating a statistic with a random element at the end.

### 5.3.1 Naive

The naive bot received two tweaks: It will choose a number with a normal value (no Doubles/Mäxchen/Hamburger) as his turning point. If the claimed number is below that one, it'll believe without a doubt. But even if it isn't, the numbers at the score generation receive the same bonus: If a number is smaller or equal to the turning point, the bot counts that number as believable, even though it might be higher than the claimed one.

The other tweak is the score at the end. After dividing the score by the number of iterations to get a float or essentially a percentage value, we do this:

$$\text{score} = (\text{score} + (1 - \text{score}) * \text{score} + (1 - \text{score}) * (1 - \text{score}) * \text{score})$$

The effect of this is easy: We increase the score. The longer explanation: By using the countervalue (1-score) and multiplying that with the score, we get the chance of missing the score with the first try but hitting it with the second one. Do this one more time, add everything together and you get a nice score that a naive bot can use.

### 5.3.2 Normal

A normal bot just uses the Believability score as described beforehand. Nothing to add here.

### 5.3.3 Suspicious

The suspicious bot received two small tweaks:

- When the score is created, the number only counts if it is larger than the claimed one, equal numbers do not count (exception: Hamburger, since there are no numbers of larger value).

- The score is divided by 3 to make it much lower and make the bot quite suspicious.

## 6 Final words

Thank you for reading this documentation and we hope that you enjoyed our game. If you have any questions, feel free to contact us via the e-mail addresses mentioned in the code.

See you soon,  
Tristan and Oliver

## 7 Sources

<https://pynative.com/python-random-shuffle/> for shuffle

<https://stackoverflow.com/questions/6169217/replace-console-output-in-python> for overwriting a printed line

## 8 Tests

Why should we include tests? It doesn't make any sense since it's an interactive game and some elements (like the number that vanishes again) won't show in a screenshot. So what do we do now? Well, if you *really* want to see kind of a test, you will now get the whole console output of 4 bots playing against each other with the standard settings. Enjoy!

```
To change a setting, simply type a number from 1 to 12 to change the according setting.
Type help to get an explanation of which number belongs to which setting.
To go directly to the game, type q.

Please remember that you can seriously fuck up the settings to the point of making the game unplayable.
This is entirely your responsibility and we recommend that you think about the impact on the game before changing any setting.

What do you want to do? q
How many players want to play?
4
Welcome to the game!
Please enter your names. It is your responsibility to pick unique names.

Player 1: Please enter your name:
Bot1#207

Player 2: Please enter your name:
Bot2#207

Player 3: Please enter your name:
Bot3#207

Player 4: Please enter your name:
Bot4#207

The play order is:
Bot3
Bot2
Bot1
Bot4

It is Bot3's turn.
Bot3 is a bot and therefore doesn't need his number to appear on screen.
The number from the last turn was 0
Bot3 typed 42
Bot2 believes that.
Maximum value reached. Restarting the game...

It is Bot2's turn.
Bot2 is a bot and therefore doesn't need his number to appear on screen.
The number from the last turn was 0
Bot2 typed 55
Bot1 does not believe that.

These were the dices:
0 0 0
0 0 0
0 0 0
Tossed number: 53 Typed number: 55

Oops, you were caught red-handed.
Try to lie better next time ;-))
Bot2 has (now) a total of 9 points.

It is Bot1's turn.
Bot1 is a bot and therefore doesn't need his number to appear on screen.
The number from the last turn was 0
Bot1 typed 44
Bot4 does not believe that.

These were the dices:
0 0 0
0 0 0
0 0 0
Tossed number: 62 Typed number: 44

Oops, you were caught red-handed.
Try to lie better next time ;-))
Bot1 has (now) a total of 9 points.

It is Bot4's turn.
Bot4 is a bot and therefore doesn't need his number to appear on screen.
The number from the last turn was 0
Bot4 typed 21
Bot3 does not believe that.

These were the dices:
0 0 0
0 0 0
0 0 0
Tossed number: 62 Typed number: 21

Oops, you were caught red-handed.
Try to lie better next time ;-))
Bot4 has (now) a total of 9 points.

It is Bot3's turn.
Bot3 is a bot and therefore doesn't need his number to appear on screen.
The number from the last turn was 0
Bot3 typed 42
Bot2 does not believe that.
```

These were the dices:  
0 0 0  
0  
0 0 0  
Tossed number: 61 Typed number: 42

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot3 has (now) a total of 9 points.

It is Bot2's turn.  
Bot2 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot2 typed 65  
Bot1 believes that.

It is Bot1's turn.  
Bot1 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 65  
Bot1 typed 42  
Bot4 does not believe that.

These were the dices:  
0 0 0  
0  
0 0 0  
Tossed number: 54 Typed number: 42

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot1 has (now) a total of 8 points.

It is Bot4's turn.  
Bot4 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot4 typed 65  
Bot3 believes that.

It is Bot3's turn.  
Bot3 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 65  
Bot3 typed 66  
Bot2 does not believe that.

These were the dices:  
0 0 0  
0 0 0  
Tossed number: 64 Typed number: 66

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot3 has (now) a total of 8 points.

It is Bot2's turn.  
Bot2 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot2 typed 51  
Bot1 believes that.

It is Bot1's turn.  
Bot1 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 51  
Bot1 typed 52  
Bot4 believes that.

It is Bot4's turn.  
Bot4 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 52  
Bot4 typed 54  
Bot3 believes that.

It is Bot3's turn.  
Bot3 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 54  
Bot3 typed 64  
Bot2 does not believe that.

These were the dices:  
0 0 0  
0  
0 0 0  
Tossed number: 61 Typed number: 64

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot3 has (now) a total of 7 points.

It is Bot2's turn.  
Bot2 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot2 typed 42  
Bot1 believes that.  
Maximum value reached. Restarting the game...

It is Bot1's turn.  
Bot1 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot1 typed 65  
Bot4 does not believe that.

These were the dices:  
0 0 0  
0  
0 0 0  
Tossed number: 43 Typed number: 65

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot1 has (now) a total of 7 points.

It is Bot4's turn.  
Bot4 is a bot and therefore doesn't need his number to appear on screen.

The number from the last turn was 0  
 Bot4 typed 54  
 Bot3 believes that.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 54  
 Bot3 typed 63  
 Bot2 does not believe that.

These were the dices:  
 0 0  
 0 0  
 0 0  
 Tossed number: 51 Typed number: 63

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot3 has (now) a total of 6 points.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot2 typed 55  
 Bot1 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 63 Typed number: 55

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot2 has (now) a total of 8 points.

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot1 typed 21  
 Bot4 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 65 Typed number: 21

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot1 has (now) a total of 6 points.

It is Bot4's turn.  
 Bot4 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot4 typed 33  
 Bot3 believes that.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 33  
 Bot3 typed 21  
 Bot2 believes that.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 21  
 Bot2 typed 42  
 Bot1 does not believe that.

These were the dices:  
 0 0  
 0 0  
 0 0  
 Tossed number: 44 Typed number: 42

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot2 has (now) a total of 7 points.

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot1 typed 64  
 Bot4 does not believe that.

These were the dices:  
 0 0  
 0 0  
 0 0  
 Tossed number: 52 Typed number: 64

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot1 has (now) a total of 5 points.

It is Bot4's turn.  
 Bot4 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot4 typed 31  
 Bot3 believes that.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 31  
 Bot3 typed 53  
 Bot2 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 62 Typed number: 53



It was a trap and you ran into it, Bot2!  
 Bot2 has (now) a total of 6 points.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot2 typed 21  
 Bot1 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 55 Typed number: 21

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot2 has (now) a total of 5 points.

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot1 typed 55  
 Bot4 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 62 Typed number: 55

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot1 has (now) a total of 4 points.

It is Bot4's turn.  
 Bot4 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot4 typed 42  
 Bot3 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 63 Typed number: 42

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot4 has (now) a total of 8 points.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot3 typed 63  
 Bot2 believes that.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 63  
 Bot2 typed 44  
 Bot1 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 53 Typed number: 44

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot2 has (now) a total of 4 points.

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot1 typed 21  
 Bot4 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 52 Typed number: 21

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot1 has (now) a total of 3 points.

It is Bot4's turn.  
 Bot4 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot4 typed 64  
 Bot3 does not believe that.

These were the dices:  
 0 0 0  
 0 0 0  
 0 0 0  
 Tossed number: 62 Typed number: 64

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot4 has (now) a total of 7 points.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot3 typed 62  
 Bot2 believes that.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 62

Bot2 typed 11  
Bot1 believes that.

It is Bot1's turn.  
Bot1 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 11  
Bot1 typed 55  
Bot4 believes that.

It is Bot4's turn.  
Bot4 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 55  
Bot4 typed 42  
Bot3 believes that.  
Maximum value reached. Restarting the game...

It is Bot3's turn.  
Bot3 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot3 typed 42  
Bot2 believes that.  
Maximum value reached. Restarting the game...

It is Bot2's turn.  
Bot2 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot2 typed 42  
Bot1 does not believe that.

These were the dices:  
0 0  
0  
0 0  
Tossed number: 41 Typed number: 42

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot2 has (now) a total of 3 points.

It is Bot1's turn.  
Bot1 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot1 typed 21  
Bot4 does not believe that.

These were the dices:  
0 0 0 0 0 0  
0 0 0 0 0 0  
Tossed number: 66 Typed number: 21

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot1 has (now) a total of 2 points.

It is Bot4's turn.  
Bot4 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot4 typed 21  
Bot3 does not believe that.

These were the dices:  
0 0  
0  
0  
Tossed number: 22 Typed number: 21

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot4 has (now) a total of 6 points.

It is Bot3's turn.  
Bot3 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot3 typed 64  
Bot2 believes that.

It is Bot2's turn.  
Bot2 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 64  
Bot2 typed 42  
Bot1 believes that.  
Maximum value reached. Restarting the game...

It is Bot1's turn.  
Bot1 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot1 typed 21  
Bot4 does not believe that.

These were the dices:  
0 0 0 0 0 0  
0 0 0 0 0 0  
Tossed number: 55 Typed number: 21

Oops, you were caught red-handed.  
Try to lie better next time ;-)  
Bot1 has (now) a total of 1 points.

It is Bot4's turn.  
Bot4 is a bot and therefore doesn't need his number to appear on screen.  
The number from the last turn was 0  
Bot4 typed 66  
Bot3 does not believe that.

These were the dices:  
0 0 0 0 0 0  
0 0 0 0 0 0  
Tossed number: 65 Typed number: 66

Oops, you were caught red-handed.  
Try to lie better next time ;-)

Bot4 has (now) a total of 5 points.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot3 typed 21  
 Bot2 does not believe that.

These were the dices:  
 0 0 0           0  
                   0  
 0 0 0           0  
 Tossed number: 63 Typed number: 21

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot3 has (now) a total of 5 points.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot2 typed 21  
 Bot1 does not believe that.

These were the dices:  
 0 0 0           0  
                   0  
 0 0 0           0  
 Tossed number: 63 Typed number: 21

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot2 has (now) a total of 2 points.

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot1 typed 65  
 Bot4 believes that.

It is Bot4's turn.  
 Bot4 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 65  
 Bot4 typed 11  
 Bot3 believes that.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 11  
 Bot3 typed 21  
 Bot2 does not believe that.

These were the dices:  
 0 0 0           0 0  
                   0 0  
 0 0 0           0 0  
 Tossed number: 65 Typed number: 21

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot3 has (now) a total of 4 points.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot2 typed 31  
 Bot1 believes that.

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 31  
 Bot1 typed 66  
 Bot4 believes that.

It is Bot4's turn.  
 Bot4 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 66  
 Bot4 typed 42  
 Bot3 does not believe that.

These were the dices:  
 0 0  
   0 0  
 0 0  
 Tossed number: 51 Typed number: 42

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot4 has (now) a total of 4 points.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot3 typed 11  
 Bot2 believes that.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 11  
 Bot2 typed 21  
 Bot1 does not believe that.

These were the dices:  
 0 0           0  
               0  
 0 0           0  
 Tossed number: 52 Typed number: 21

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot2 has (now) a total of 1 points.

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.

The number from the last turn was 0  
 Bot1 typed 21  
 Bot4 believes that.

It is Bot4's turn.  
 Bot4 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 21  
 Bot4 typed 42  
 Bot3 does not believe that.

These were the dices:  
 0 0 0

0 0 0  
 Tossed number: 42 Typed number: 42

No lie, no points for Bot3  
 Bot3 has (now) a total of 1 points.  
 Turn order got reversed. Be prepared!

It is Bot1's turn.  
 Bot1 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot1 typed 61  
 Bot2 does not believe that.

These were the dices:  
 0 0 0

0 0 0  
 Tossed number: 52 Typed number: 61

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot1 has (now) a total of 0 points.

Bot1 has 0 points and is therefore out of the game! Better luck next time.

It is Bot2's turn.  
 Bot2 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot2 typed 42  
 Bot3 does not believe that.

These were the dices:  
 0 0 0 0 0

0 0 0 0 0  
 Tossed number: 65 Typed number: 42

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot2 has (now) a total of 0 points.

Bot2 has 0 points and is therefore out of the game! Better luck next time.

It is Bot3's turn.  
 Bot3 is a bot and therefore doesn't need his number to appear on screen.  
 The number from the last turn was 0  
 Bot3 typed 65  
 Bot4 does not believe that.

These were the dices:  
 0 0 0 0 0

0 0 0 0 0  
 Tossed number: 43 Typed number: 65

Oops, you were caught red-handed.  
 Try to lie better next time ;-)  
 Bot3 has (now) a total of 0 points.

Bot3 has 0 points and is therefore out of the game! Better luck next time.  
 Bot4 won the game. Congratulations!

Here are the player statistics of all rounds:

The points of Bot1:

Round 1	10
Round 2	0
Round 3	0
Round 4	0
Round 5	8
Round 6	8
Round 7	8
Round 8	7
Round 9	7
Round 10	7
Round 11	6
Round 12	6
Round 13	5
Round 14	5
Round 15	5
Round 16	4
Round 17	4
Round 18	4
Round 19	4
Round 20	0
Round 21	0
Round 22	0
Round 23	0
Round 24	0
Round 25	0
Round 26	0
Round 27	0
Round 28	0
Round 29	0
Round 30	0
Round 31	0
Round 32	0

The points of Bot2:

Round 1	9
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Round 2	9
Round 3	9
Round 4	9
Round 5	9
Round 6	9
Round 7	9
Round 8	9
Round 9	9
Round 10	8
Round 11	8
Round 12	7
Round 13	7
Round 14	6
Round 15	5
Round 16	5
Round 17	5
Round 18	4
Round 19	4
Round 20	4
Round 21	3
Round 22	3
Round 23	3
Round 24	3
Round 25	3
Round 26	3
Round 27	2
Round 28	2
Round 29	2
Round 30	1
Round 31	1
Round 32	1
Round 33	0

The points of Bot3:

Round 1	10
Round 2	10
Round 3	10
Round 4	9
Round 5	9
Round 6	8
Round 7	7
Round 8	7
Round 9	6
Round 10	6
Round 11	6
Round 12	6
Round 13	6
Round 14	6
Round 15	6
Round 16	6
Round 17	6
Round 18	6
Round 19	6
Round 20	6
Round 21	6
Round 22	6
Round 23	6
Round 24	6
Round 25	6
Round 26	5
Round 27	5
Round 28	4
Round 29	4
Round 30	4
Round 31	1
Round 32	1
Round 33	1
Round 34	0

The points of Bot4:

Round 1	10
Round 2	10
Round 3	9
Round 4	9
Round 5	9
Round 6	9
Round 7	9
Round 8	9
Round 9	9
Round 10	9
Round 11	9
Round 12	9
Round 13	9
Round 14	9
Round 15	9
Round 16	9
Round 17	9
Round 18	9
Round 19	9
Round 20	8
Round 21	7
Round 22	7
Round 23	7
Round 24	6
Round 25	6
Round 26	6
Round 27	6
Round 28	6
Round 29	6
Round 30	4
Round 31	4
Round 32	4
Round 33	4
Round 34	4

Press enter to exit the game...

Process finished with exit code 0