
This document describes SchoolMint's lottery mechanism. It goes on to explain how schools are able to run fair and auditable lotteries for granting admissions.

SchoolMint Lottery Supports the following types of lotteries:

- a. Plain Lotteries with No priorities (random number based lotteries)
- b. Lottery with preferences
- c. Lottery with preferences and separate weights
- d. Lottery with quotas

Our Random number generator (PRNG) is currently implemented as a ***modified Mersenne Twister with a period of 2¹⁹⁹³⁷-1.***

Below are examples demonstrating the lottery mechanism:

Let's say there are 5 students (s1,s2, s3, s4 and s5)

Scenario 1: Everyone has a "no priority". In this case, we put x number of tickets for each student in the hat (i.e our randomizer - Ruby). Let's say x=1 so each student will get 1 ticket in the hat
s1 (t1), s2 (t2), s3 (t3), s4 (t4), s5(t5)

Now lets say there are 3 seats available for the grade that these 5 kids are applying to. then randomly we pick up tickets for 3 students (e.g t3, t1, t4). In this case students 3, 1 and 4 gets picked up and remaining goes in the waitlist

Scenario 2: Let's say s1 and s2 have some higher priority with multiple tickets (for our case assume its 3 tickets). and s3,s4 and s5 have 1 ticket.

In this case, here is how we do it:

s1: t1-t3
s2: t4-t6
s3: t7
s4: t8
s5: t9

Now we put all these tickets in the "hat" and then pick up the first ticket, then the second one and then the third one. If a student is already picked up then we remove their remaining tickets from the lottery.

More details

- a. We use an industry standard randomizer.
- b. We maintain an audit-trail for all the changes including any waitlist changes that can happen as result of students accepting or declining offers.
- c. We use a psuedo-random number generator is currently implemented as a ***modified Mersenne Twister with a period of $2^{19937}-1$*** . This is the default random number generator available with Ruby Language. More information can be found here (<http://ruby-doc.org/core-2.2.0/Random.html>). The generator uses a source of entropy provided by the operating system, if available (/dev/urandom on Unix systems or the RSA cryptographic provider on Windows), which is then combined with the time, the process id, and a sequence number.
- d. Because of this randomizer, every lottery run will show different results.
- e. We do not allow any user (school admin or SchoolMint employee) to tamper with the randomization of the lottery.

For more information about SchoolMint's lottery algorithm please contact SchoolMint at 844-287-2466.

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