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*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.*

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## **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 2\*\*19937-1.***

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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