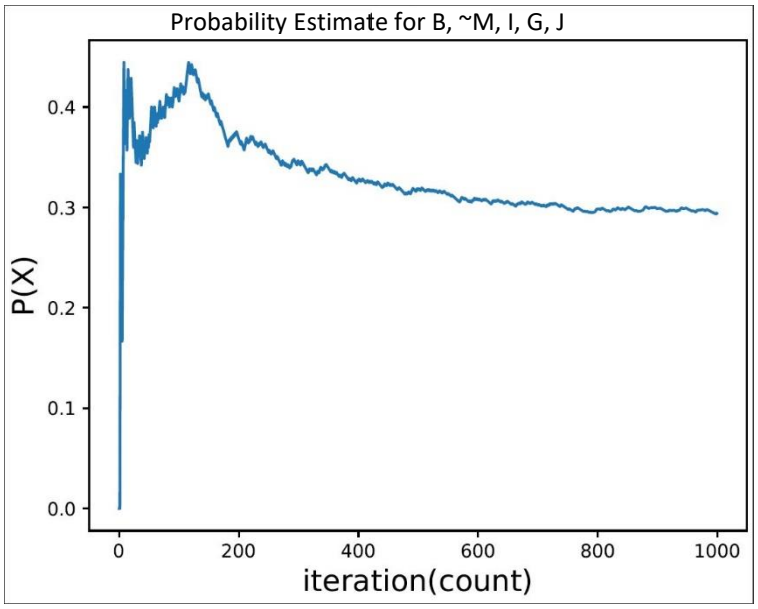
1. **P(b, ~m, i, g, j):**

   a. Exact probability computation: P(b, ~m, i, g, j) = 0.9 x 0.9 x 0.5 x 0.8 x 0.9 = 0.2916

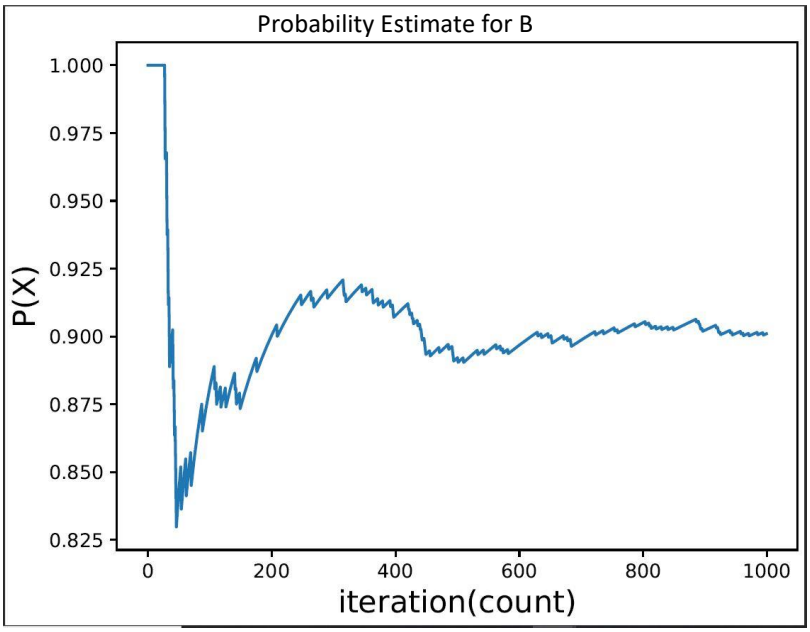
   b. Running estimate plot (final estimate: 0.285):



2. **P(b)**

   a. Exact probability computation: P(b) = 0.9

   b. Running estimate plot (final estimate: 0.902):

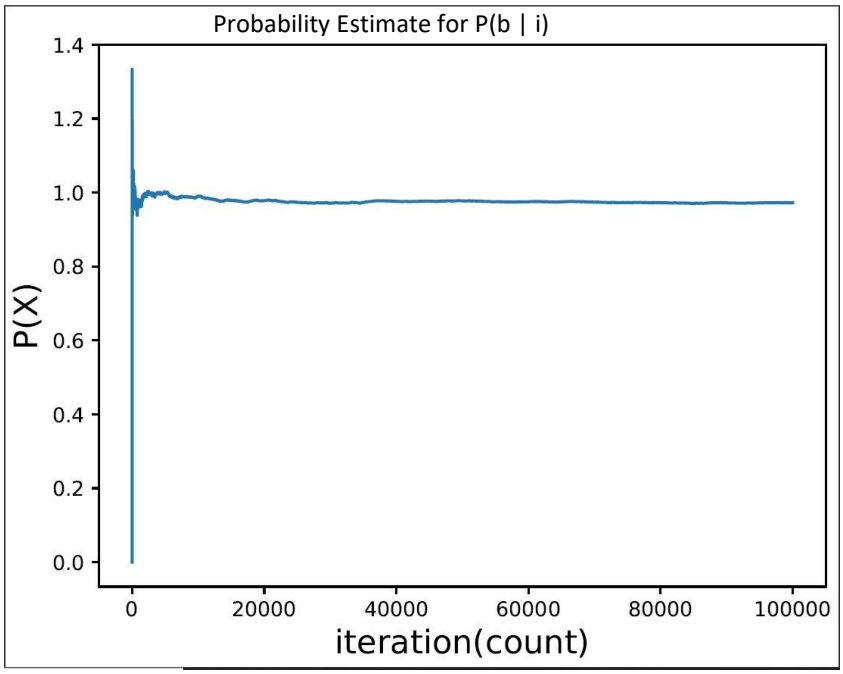


3. **P(b | i)**

   a. Rejection percentage: 49.954%

   b. Exact probability calculation: given in project documentation 0.972

   c. Running estimate plot (final estimate: 0.9703):



4. **P(m | j, ~b)**

   a. Rejection percentage: 99.81%

   b. Exact probability computation:

   $P(m \mid j, \sim b) = \alpha P(M, j, \sim b) = \alpha \Sigma_y P(M, j, \sim b, y)$

   $\alpha \Sigma_{i, g} P(M, j, \sim b, i, g)$

   $\alpha \langle P(m, j, \sim b, i, g) + P(m, j, \sim b, \sim i, \sim g), P(\sim m, j, \sim b, i, g) + P(\sim m, j, \sim b, \sim i, \sim g) \rangle$

   $P(m, j, \sim b, i, g) = P(m)P(\sim b)P(i \mid \sim b, m)P(g \mid \sim b, m, i)P(j \mid g)$

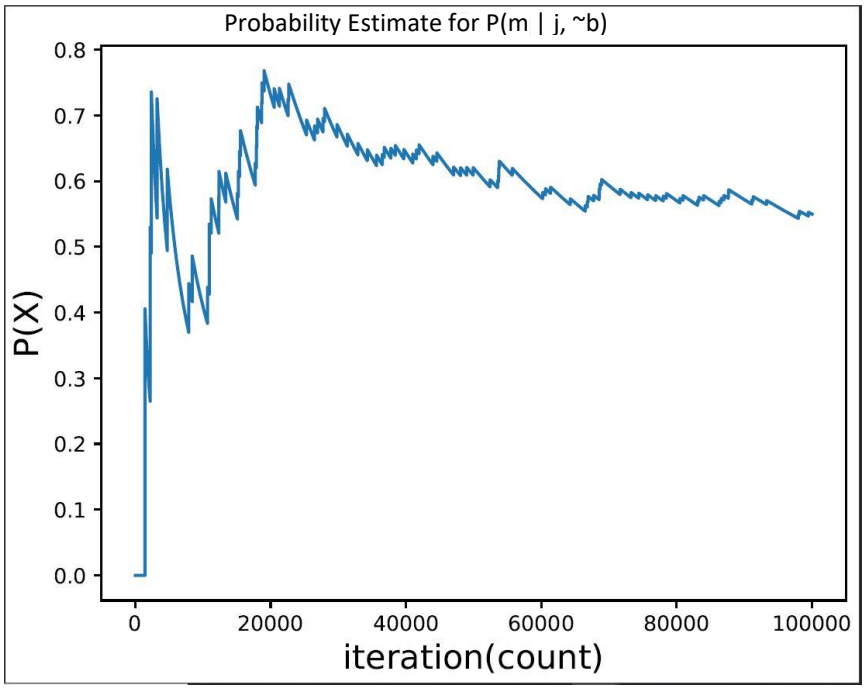
   $\alpha \langle P(m, \sim b, i, g, j) + P(m, \sim b, \sim i, \sim g, j), P(\sim m, \sim b, i, g, j) + P(\sim m, \sim b, \sim i, \sim g, j) \rangle$

   $\alpha \langle 0.1 \times 0.1 \times 0.5 \times 0.2 \times 0.9 + 0.1 \times 0.1 \times 0.5 \times 1 \times 0, 0.9 \times 0.1 \times 0.1 \times 0.1 \times 0.9 + 0.9 \times 0.1 \times 0.9 \times 1 \times 0 \rangle$

α<0.0009, 0.00081>

α<0.526, 0.474>

c. Running estimate plot (final estimate: 0.5497):



Note: All sample output generated by running the program once with no input or changes