

Calculation of π by Monte-Carlo algorithm

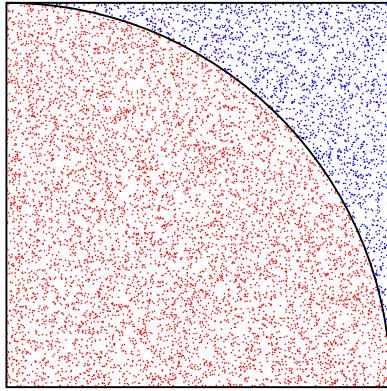
$n = 10000$

$\text{r} = \text{random}(\text{fill}(\text{vector}_{\text{hp}}(n); 1)) = \text{random}(\text{fill}(\text{vector}_{\text{hp}}(10000); 1)) = [0.9150824 \ 0.2465905 \ 0.6978289 \ 0.3931293 \ 0.867635 \ 0.2746394 \ 0.7019179 \ 0.7649325 \ 0.9339007 \ 0.3569538 \ 0.2710576 \ 0.09302675 \ 0.6179102 \ 0.3135738 \ 0.1989423 \ 0.01957095 \ 0.04963647 \ 0.8618126 \ 0.1196906 \ 0.3954102 \dots 0.5968447]$

$\text{r} = \text{random}(\text{fill}(\text{Vector}_{\text{hp}}(n); 1)) = \text{random}(\text{fill}(\text{Vector}_{\text{hp}}(10000); 1)) = [0.7805184 \ 0.68976 \ 0.2488817 \ 0.1245719 \ 0.8281453 \ 0.3299011 \ 0.3117345 \ 0.416383 \ 0.9679879 \ 0.1157725 \ 0.4855076 \ 0.1650483 \ 0.4046864 \ 0.7227857 \ 0.8108571 \ 0.1838872 \ 0.2506455 \ 0.9130547 \ 0.05461393 \ 0.7979841 \dots 0.2807092]$

$\text{r} = \sqrt{x^2 + y^2} = [1.202741 \ 0.7325133 \ 0.7408828 \ 0.412394 \ 1.199423 \ 0.4292569 \ 0.7680281 \ 0.870917 \ 1.345054 \ 0.3752589 \ 0.5560484 \ 0.1894596 \ 0.7386367 \ 0.7878754 \ 0.8349056 \ 0.1849257 \ 0.2555131 \ 1.255544 \ 0.1315619 \ 0.8905773 \dots 0.6595615]$

$$n_{\text{in}} = \text{count}(\text{floor}(r); 0; 1) = 7891, PI = \frac{4 \cdot n_{\text{in}}}{n} = \frac{4 \cdot 7891}{10000} = 3.1564$$



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