Assignment 4

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EEN218

include <iostream>

using namespace std;

int random\_in\_range(int a, int b) {

return a+random()%(b-a+1);

}

void swap(string &a, string &b) {

string temp = a;

a = b;

b = temp;

}

int partition(string A[], int begin, int end) {

int PivPos = random\_in\_range(begin,end);

int P = begin, Q = end;

while (true) {

while (A[P]<=A[PivPos] && P<=end)

P++;

while (A[Q]>=A[PivPos] && Q>=begin)

Q--;

if (P<Q) {

swap(A[P],A[Q]);

P++;

Q--;

}

else {

if (P<=PivPos) {

swap(A[P],A[PivPos]);

P++;

}

else if (Q>=PivPos) {

swap(A[Q],A[PivPos]);

Q++;

}

break;

}

}

return PivPos;

}

void quicksort(string A[], int begin, int end) {

if (end>begin) {

int piv = partition(A,begin,end);

quicksort(A,begin,piv);

quicksort(A,piv+1,end);

}

}

void main() {

const int size = 10;

string x[size] = {"aa", "bb", "cc", "ddd", "ff", "ee", "ab", "gg", "dd", "zz"};

for (int i=0; i<size; i++) {

cout << x[i] << " ";

}

cout << "\n";

quicksort(x,0,size-1);

for (int i=0; i<size; i++) {

cout << x[i] << " ";

}

cout << "\n";

}

**Output:**

