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#include <iostream>
#include <sys/wait.h>
#include <sys/types.h>
#include <unistd.h>
using namespace std;

int sumOfArr(int *arr){
    int sum = 0;
    for(int i = 0; arr[i]!=-9999; i++){
        sum +=arr[i];
    }
    return sum;
}
int size(int *arr){
    int Size = 0;
    for(int i = 0; arr[i]!=-9999; i++){
        Size++;
    }
    return Size-1;
}

void average(int *arr){
    cout<<"\nAverage : "<<sumOfArr(arr)/size(arr);
}

void maximumNumber(int *arr){
    int max = -999999999;
    for(int i = 0 ; arr[i] != -9999; i++){
        if(max<arr[i]){
            max = arr[i];
        }
    }
    cout<<"\nMax size in array : "<<max;
}

int main(int argc, char** argv){

    int *arr = new int[argc];
    for (int i = 1; i < argc; ++i){
        int index = 0;
        int number = 0;

        while(argv[i][index] !='\0'){
            number *= 10;
            number += argv[i][index]-48;
            index++;
        }
        arr[i-1] = number;
    }
    arr[argc] = -9999; // I'm considering that array terminate
with -9999

    pid_t fFID;// first Fork ID
    fFID = fork(); // creat child and parent processes

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        if(fFID==0){ // first child process
            cout<<"\nEnter in first child process";
            cout<<"\nsum of all element of array is : "<<
sumOfArr(arr)<<endl;
        }

        else if(fFID>0){ // PARENT PROCESS
            pid_t fSID = fork();

            if(fSID == 0){ // second child
                cout<<"\nEnter in second child process";
                average(arr);
            }
            else if(fSID>0) { // parent process
                wait(NULL);
                pid_t fTID = fork(); // third child;
                if(fTID == 0 ){ // third child
                    cout<<"\nEnter in third child
process";
                    maximumNumber(arr);
                }
            }
        }
        return 0;
    }
}

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