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#include <memory>
#include <string>
#include <iostream>
#include <functional>
#include <queue>

template<typename Impl, typename ...Args > struct Executor{

    void operator() (Args ...args){if(m_impl) return (*m_impl)(args...); }
    template<typename ...IArgs > static Executor Instance(IArgs ...iargs){
        return Executor(std::make_shared<Impl>(iargs ...));
    }
private:
    using ImplPtr = std::shared_ptr<Impl>;
    Executor(ImplPtr impl):m_impl(impl){}
    ImplPtr m_impl;
};

template<typename Impl>
using VoidExecutor = Executor<Impl> ;

struct I1{
    void operator() ( ) {std::cout << "I1::operator() "<<std::endl;}
};
struct I2{
    void operator() ( ) {std::cout << "I2::operator() "<<std::endl;}
};

struct I3{
    I3(int i):m_i(i){}
    void operator() ( ) {std::cout << "I2::operator() "<< m_i<<std::endl;}
    int m_i;
};

std::queue< std::function<void()> > voidQueue;

int main(int argc, char* argv[])
{
    voidQueue.push(VoidExecutor<I1>::Instance());
    voidQueue.push(VoidExecutor<I2>::Instance());
    voidQueue.push(VoidExecutor<I3>::Instance(23));
    voidQueue.push([]() {std::cout << "lambda []() "<<std::endl;} );
    int j =5;
    voidQueue.push([j]() {std::cout << "lambda [](j) "<< j<<std::endl;} );
    voidQueue.push(I1());
    voidQueue.push(I3(8));

    while(!voidQueue.empty()){
        voidQueue.front()(); voidQueue.pop();
    }
}
```