

[Help](#)

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#include <iostream>
#include <cmath>
#include <cstdlib>
#include <cstring>

using namespace std;

#include "
href../../../../common/math/ImportanceSampling_jl/src/AsianOption_h_src.pdfmath/
#include "
href../../../../common/math/jlparser/include/jlparser/parser_h_src.pdfjlparser/p

double AsianCallOption::payoff(const PnlMat *path_val)
{
    double sum = pnl_mat_scalar_prod(path_val, ones, lambda);
    sum /= path_val->m;
    return max(sum - K, 0.0);
}

AsianCallOption::AsianCallOption() : lambda(NULL), ones(NULL) { }

AsianCallOption::AsianCallOption(const Param &P) :
    BaseOption(P)
{
    label = "asian";
    P.extract("strike", K);
    if ((! P.extract("payoff coefficients", lambda, size, true)) && (size == 1))
    {
        lambda = pnl_vect_create_from_scalar(1, 1.);
    }
    ones = pnl_vect_create_from_scalar(nTimeSteps + 1, 1.);
}

void AsianCallOption::print() const
{
    cout << "**** Asian Option Characteristics ****" << endl;
    BaseOption::print();
}
```

```

    cout << " strike : " << K << endl;
    cout << " payoff coefficients : "; pnl_vect_print_asrow(lambda); cout << endl;
}

AsianCallOption::~AsianCallOption()
{
    pnl_vect_free(&lambda);
    pnl_vect_free(&ones);
}

```