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```

#ifndef _COPULAS_H
#define _COPULAS_H

#include "cdo_math.h"
#include "structs.h"
#include "pnl/pnl_cdf.h"

typedef struct copula
{
    char          *name;
    int           nfactor; /* number of factors */
    int           size;
    double        *points; /* array of size nfactor x size */
    double        *weights; /* array of size nfactor x size */

    double (*density)(const struct copula *cop, const double x);
    double (*compute_cond_prob)(const struct copula *cop, const double f_t,
    double stu; /* uniquement pour la student */

    void (*generate)(struct copula *cop);
    int (*compute_default_time)(const struct copula *cop,
                                const step_fun      *H,
                                double                *time);

    void *parameters;
} copula;

copula *init_gaussian_copula(const double rho);
void free_copula(copula **cop);
copula *init_clayton_copula(const double theta);
copula *init_student_copula(const double rho, const double t1);
copula *init_nig_copula(const double rho,
                        const double alpha,
                        const double beta);
copula *init_double_t_copula(const double rho, const double t1, const double t2);
copula *init_copula(int t_copula, const double *p_copula);

#endif

```