```
// "BF.h"
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// Dep. Applied Mathematics, Serge V. Stakhov (c) 2018
////////////////////////////////////////////////////////
#pragma once
typedef unsigned char byte;
typedef unsigned int uint;
typedef unsigned long int ulint;
typedef enum { tTVT, tPDNF, tPCNF, tZheP, tKarn, tRDNF, tDF, tCF } RepT;
// BoolFunc Representation Type

const std::exception
    IllegalRepTinBF("Illegal RepT t in BF(..., RepT t)")
    , NoutOfRange("32 <= n"), XoutOfRange("1U << n <= X")
    , UnKnownRepT("UnKnown RepT t")
    , BFnewArrayFail("BF(byte N, uint *p, RepT t = tTVT, size_t M = 0): new Array
      Fail")
    , BFnewMatrixFail("BF(byte N, uint **p, RepT t = tTVT, size_t M = 0): new
      Matrix Fail");

uint Grey(uint Ind); // Grey Code of Index
uint Grey2Int(uint G); // Index of Grey Code

class BF
{
    byte n; // number of boolean variables < 32
    size_t mTVT, mPDNF, mPCNF, mZheP, mKarn, LKarn, mRDNF, mDF, mCF;
    uint *TVT, *PDNF, *PCNF, *ZheP, **Karn, **RDNF, **DF, **CF;
    void writeTVT(uint X, bool TVX); // TVT(X) <- TVX
public:
    BF(); // const BF == false
    BF(bool TV); // const BF == TrueValue
    BF(byte N, uint *p, RepT t = tTVT, size_t M = 0);
    // PDNF, PCNF, ZheP -> TVT -> PDNF, PCNF, ZheP, Karn, RDNF

    BF(byte N, uint **p, RepT t = tKarn, size_t M = 0);
    // Karn, DF, CF -> TVT -> PDNF, PCNF, ZheP, Karn, RDNF

    ~BF();
    bool Val(uint X, RepT t = tTVT);
};
```