Algorithm 738: Programs to Generate Niederreiter's Low-Discrepancy Sequences

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This note points out programs to implement Niederreiter's low-discrepancy sequences

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Bratley et al. [1992] describe an algorithm to generate Niederreiter's low-discrepancy sequences. Among other things, these sequences are useful for numerical integration in certain fixed dimensions. For further information and background, see Niederreiter [1992]. Based on theoretical results discussed by Bratley et al. [1992], as well as on empirical comparisons, we believe that Niederreiter's sequences supersede earlier methods due to Faure and to Sobol'—implemented by Fox [1986] and Bratley and Fox [1988], respectively.

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Since the corresponding programs are discussed in detail in these respective papers, we use this note simply to point out the existence of these programs and as a means to get our programs cited by Bratley et al. [1992] archived in the *Collected Algorithms of the ACM* (CALGO).

We provide guides to the base-2 and general-base routines, respectively. These guides detail the few (possibly no) system-dependent changes the user needs to make to tailor the drivers and subroutines. The user needs to replace our subroutine TESTF, which contains test integrands, by another subroutine TESTF containing user-relevant integrands. The drivers prompt the user to make the required changes, to specify run lengths, etc. Email instructions from the authors about ftp access to the guides, drivers, and subroutines are available.

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