P2. Fie $n \in \mathbb{N}$, $n \geq 2$, şi $x_1, x_2, \ldots, x_n, z \in \mathbb{C}$. Notând $S_k = \sum_{i=1}^{n} x_i^k$, calculaţi determinantul:

$$D = \begin{vmatrix} S_0 & S_1 & S_2 & \ldots & S_{n-1} & 1 \\ S_1 & S_2 & S_3 & \ldots & S_n & z \\ S_2 & S_3 & S_4 & \ldots & S_{n+1} & z^2 \\ \vdots & \vdots & \vdots & \ddots & \vdots & \vdots \\ S_{n-1} & S_n & S_{n+1} & \ldots & S_{2n-2} & z^{n-1} \\ S_n & S_{n+1} & S_{n+2} & \ldots & S_{2n-1} & z^n \end{vmatrix}.$$