Errata to the book *Functional analysis* by W. Rudin

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These are errata to the book

**p.26, Proof of Theorem 1.37**

At the end of the first paragraph it is stated without proof that $\mathcal{B}$ is a local base for $\tau$. Here is a simple argument showing this assertion. Let $U$ be an open neighbourhood of 0. We have to show that $U$ includes a member of $\mathcal{B}$. First, $U$ contains an open neighbourhood of 0 of the form $\bigcap_{j=1}^{k}(a + V(p_j, n_j))$. Then $p_j(a) < n_j^{-1}$ for all $j$. Choose a positive integer $m_j$ such that $m_j^{-1} < n_j^{-1} - p_j(a)$. Then $V(p_j, m_j) \subset a + V(p_j, n_j)$ for all $j$. Hence $\bigcap_{j=1}^{k}V(p_j, m_j)$ is a member of $\mathcal{B}$ which is included in $\bigcap_{j=1}^{k}(a + V(p_j, n_j))$. 