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Figure 10 displays the performance of the proposed system for user profile insertion and search, comparing it against a baseline (light blue line) across various sample sizes (10, 100, 1000, 5000, 10000, 25000, 50000).

The figure is divided into eight subplots, organized into four rows and two columns:

- Row 1: User Profile Insertion**
 - User Profile Insertion Hash Table:** The proposed system (blue line with circles) shows a significant increase in average time (milliseconds) as sample size increases, reaching approximately 28 ms at 50,000 samples. The baseline (light blue line) shows a much slower increase, reaching about 18 ms at 50,000 samples.
 - User Profile Insertion Linked List:** The proposed system shows a sharp increase in average time (milliseconds) at 50,000 samples, reaching approximately 7 ms. The baseline shows a steady increase, reaching about 5.25 ms at 50,000 samples.
- Row 2: User Profile Search**
 - User Profile Search Hash Table:** The proposed system shows a significant increase in average time (nanoseconds) as sample size increases, reaching approximately 9,000,000 ns at 50,000 samples. The baseline shows a much slower increase, reaching about 7,500,000 ns at 50,000 samples.
 - User Profile Search Linked List:** The proposed system shows a sharp increase in average time (nanoseconds) at 50,000 samples, reaching approximately 55,000,000 ns. The baseline shows a steady increase, reaching about 30,000,000 ns at 50,000 samples.
- Row 3: Trail Data Insertion**
 - Trail Data Insertion Tree Map:** The proposed system shows a significant increase in average time (milliseconds) as sample size increases, reaching approximately 30 ms at 50,000 samples. The baseline shows a much slower increase, reaching about 28 ms at 50,000 samples.
 - Trail Data Insertion Linked List:** The proposed system shows a sharp increase in average time (milliseconds) at 25,000 samples, reaching approximately 18 ms, followed by a decrease at 50,000 samples. The baseline shows a steady increase, reaching about 10 ms at 50,000 samples.
- Row 4: Trail Data Search**
 - Trail Data Search TreeMap:** The proposed system shows a significant increase in average time (milliseconds) as sample size increases, reaching approximately 11 ms at 50,000 samples. The baseline shows a much slower increase, reaching about 9 ms at 50,000 samples.
 - Trail Data Search Linked List:** The proposed system shows a sharp increase in average time (milliseconds) at 25,000 samples, reaching approximately 1100 ms, followed by a decrease at 50,000 samples. The baseline shows a steady increase, reaching about 900 ms at 50,000 samples.