The study of the morphological traits may contribute to identify the specific characteristics of local Indonesian chickens. Measuring the body size and shape by analyzing them through a mathematical method of principal component analyses can determine the specific morphological traits. The research of characterizing the body size and shape of Ketawa chicken, Pelung chicken and Kampung chicken was conducted in different chicken farms located in Jakarta, Yogyakarta and Bogor. The data for Ketawa chickens was obtained from Arawa Farm (Jakarta), farm in Yogyakarta, and Daarul Mughni Al-Maliki Farm Cileungsi (Bogor). Whereas the data of Pelung chicken was obtained from farms in Bogor (Salabenda and Bestari Farm), as well as Sempur farm in Bogor for Kampung chicken. This research was conducted from April 2011 to May 2011 by collecting the chicken body measurements consist of the length of femur (X1), length of tibia (X2), length of shank (X3), shank circumference (X4), length of third finger (X5), length of wing (X6), length of maxillary (X7), height of comb (X8), length of neck bones (X9), length of the chest (X10) and chest width (X11). A total of 148 chickens consists of 89 Ketawa chickens (44 males and 45 females), 30 Pelung chickens (15 males and 15 females) and 29 Kampung chickens (14 males and 15 females) were collected. All data were subjected to T2-Hotelling of principal component analyses and supported by Minitab version 15 software. The result showed that there was differences among chicken body size and shape in different species of the chickens and location (P <0.01).

Keywords: Chicken, T2-Hotelling, Principal Component Analysis.