AST6 Airline Online Service

**Team 6**

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[Retrieve user information from user table](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3y7cqk1o78j) [26](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3y7cqk1o78j)

[Retrieve user preference from preference table via user\_has\_preference relationship](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.dj11u0qth71c) [26](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.dj11u0qth71c)

[Store user and preference in express session](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.yl9v1886lcic) [26](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.yl9v1886lcic)

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[Failed authentication](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6k1baci55le4) [26](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6k1baci55le4)

[Successfully authenticated](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bn0eoe1xels2) [26](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bn0eoe1xels2)

[Sign Out](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.2omvgimu9ksy) [26](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.2omvgimu9ksy)

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[Destroy server session](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6sum34j3jpor) [27](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6sum34j3jpor)

[Redirect user to Welcome page](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6sum34j3jpor) [27](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6sum34j3jpor)

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[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ib3kfgjz7u7d) [28](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ib3kfgjz7u7d)

[Insert user information into user table](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.uxlmegrdfhqf) [28](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.uxlmegrdfhqf)

[Insert default values into preference](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.u3i3zus9w9qp) [28](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.u3i3zus9w9qp)

[Insert user\_id / sha1(email) and preference\_id into user\_has\_preference](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ufjvshe2n2dc) [28](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ufjvshe2n2dc)

[Send Welcome email](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.a3dmnr2vttqc) [28](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.a3dmnr2vttqc)

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[Failed validation](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bapx84cjhd8q) [28](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bapx84cjhd8q)

[Successfully signed up. System will send email (if not seeing, check Spam) to welcome new user](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.325a3oheo1mk) [29](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.325a3oheo1mk)

[Forgot Password](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.hg3tlu5edy72) [29](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.hg3tlu5edy72)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.vjawztpeeqde) [29](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.vjawztpeeqde)

[Check if given email existing in the system](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.1lf0w4q2nnst) [29](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.1lf0w4q2nnst)

[Add (update) recovery\_link, recovery\_exp into user table](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.aqml5nlo6m9c) [30](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.aqml5nlo6m9c)

[Send Recovery email](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.1sgc6ccsp8s1) [30](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.1sgc6ccsp8s1)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.uyzuuiqm6wgv) [30](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.uyzuuiqm6wgv)

[Failed validation](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.g32wd0wk5i1d) [30](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.g32wd0wk5i1d)

[Successfully requested for recovery link](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.fkejdc35jw6l) [30](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.fkejdc35jw6l)

[Click on recovery link; then, update password (see User Password)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.oibzlxgrg3o5) [31](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.oibzlxgrg3o5)

[Dashboard](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.80cy071c8pb3) [31](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.80cy071c8pb3)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ua7i32ndj5xv) [31](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ua7i32ndj5xv)

[Get flights associated with authenticated user\_id](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.fbe6b2r7lq1) [31](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.fbe6b2r7lq1)

[Booking number link in Flight table is to redirect to Booking Detail (see Booking Detail)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.yvp40jg7oj1d) [32](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.yvp40jg7oj1d)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bi5cnsqppvam) [32](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bi5cnsqppvam)

[Retrieve flights associated with authenticated user](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.41v2xz399bi4) [32](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.41v2xz399bi4)

[Booking Detail](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.z75oldxij3yb) [32](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.z75oldxij3yb)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.figa4eah5exb) [33](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.figa4eah5exb)

[Retrieve booking information with given booking number](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v6ixcal40li6) [33](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v6ixcal40li6)

[Cancel booking by selecting one or more passengers](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.f6ipgter0de2) [33](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.f6ipgter0de2)

[Update booking\_status (from Normal to Cancelled) in booking\_passenger](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.g73hplywbj7c) [33](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.g73hplywbj7c)

[Retrieve flight\_id from user\_book\_flight with given booking\_number](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.fnsoljb9lcei) [33](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.fnsoljb9lcei)

[Update seats for flight](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.gfy8fj5lh9em) [33](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.gfy8fj5lh9em)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6x6igoz90ec1) [33](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6x6igoz90ec1)

[User Profile](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bbojrs62oe0y) [34](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.bbojrs62oe0y)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.4o0o1ve13n2o) [34](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.4o0o1ve13n2o)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.9ha8koczdu79) [34](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.9ha8koczdu79)

[User Basic Information](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.8g7vfjkykz0e) [34](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.8g7vfjkykz0e)

[User Password](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.w8o508mvx1fi) [35](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.w8o508mvx1fi)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.d186elj1hgds) [35](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.d186elj1hgds)

[If update password from recovery link, looking up for user with corresponding recovery\_link and check if link is expired with recovery\_exp](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.5vnvmtn2b0bx) [35](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.5vnvmtn2b0bx)

[Update password with given user\_id and given current password](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.jqv4di7yu8p1) [35](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.jqv4di7yu8p1)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.h8zavkipjmle) [36](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.h8zavkipjmle)

[Failed validation: password is too short or too simple](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m8z6xjof1l5y) [36](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m8z6xjof1l5y)

[Successfully updated password and stay at the same page](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m8z6xjof1l5y) [36](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m8z6xjof1l5y)

[User Preference](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.oyywwwjwc9vu) [36](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.oyywwwjwc9vu)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v4w1lyg0b4t6) [36](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v4w1lyg0b4t6)

[Update all attributes in user preference with session-stored preference\_id](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.8sk561vbtsyn) [36](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.8sk561vbtsyn)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v5lui4vuoew) [37](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v5lui4vuoew)

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[Booking (Search)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.1jla148eeezy) [37](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.1jla148eeezy)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ph68w9y8tsar) [37](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ph68w9y8tsar)

[Fetch airport data](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.n9bttmbk6gt3) [37](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.n9bttmbk6gt3)

[Get list of airports for autocomplete input fields (Flight From, Flight To)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.dhn0lal44243) [38](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.dhn0lal44243)

[Trip type (Roundtrip, One-way)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.lj9ogqijb1l) [38](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.lj9ogqijb1l)

[Roundtrip](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.l56m93dbxgnj) [38](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.l56m93dbxgnj)

[One-way](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.9fm84kk38urb) [39](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.9fm84kk38urb)

[Passengers (number of passengers)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.tie56kfqoewp) [39](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.tie56kfqoewp)

[Advanced Options](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.insl6ipbfp0u) [39](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.insl6ipbfp0u)

[Flight class (all, economy, business)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.c1ssy3bnzqii) [39](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.c1ssy3bnzqii)

[Max price](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.pcl8ssqvua3v) [39](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.pcl8ssqvua3v)

[Sort by](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3kjnyuykgr6x) [40](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3kjnyuykgr6x)

[Click Search](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.x9hsgxqvjt2x) [40](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.x9hsgxqvjt2x)

[Function to process and build request call on front-end side](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.gxhgqdj6bjlv) [40](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.gxhgqdj6bjlv)

[Function to process request call and build query on back-end side](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.tpe15q2e931d) [40](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.tpe15q2e931d)

[Booking (Search Results)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.qs4yq0v9bnat) [41](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.qs4yq0v9bnat)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.apnmwhi9ofy3) [42](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.apnmwhi9ofy3)

[User can refine search by clicking on Modify link](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ydfnt3e3jtvr) [42](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.ydfnt3e3jtvr)

[User can select different Sort By (Depart Time, Arrive Time, Price)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6dgjkyuo5jhw) [42](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.6dgjkyuo5jhw)

[Select a flight by clicking on Economy or Business button](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m0ugmendhof8) [42](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m0ugmendhof8)

[Complete selecting flight, Continue to Reservation button will appear](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m0ugmendhof8) [42](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m0ugmendhof8)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.4h5uhww2g1tx) [42](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.4h5uhww2g1tx)

[Booking (Reservation)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.alj20cdx8ig) [42](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.alj20cdx8ig)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m907zadllnk0) [43](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.m907zadllnk0)

[Click on Flight Summary to view summary of selected flight(s)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.lwgf21u8ut8d) [43](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.lwgf21u8ut8d)

[Click Add Passenger button to add one more passenger to book](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.s0t88pic5gu8) [43](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.s0t88pic5gu8)

[Click on Send confirmation (optional) to receive Confirmation Email](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.7etkz473idq3) [44](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.7etkz473idq3)

[After complete filling out inputs for passenger, click Finish button to complete Reservation (skip payment process, assume all payment is valid)](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.7etkz473idq3) [44](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.7etkz473idq3)

[Results](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.sbdxr05jhpo2) [44](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.sbdxr05jhpo2)

[Failed validation](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.pi2l2jkn02qo) [44](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.pi2l2jkn02qo)

[Successfully booked the flight(s) (alert appears from top).](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.e61dtez1c9oz) [44](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.e61dtez1c9oz)

[**Setup procedures**](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v98qw6loymk8)[**44**](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.v98qw6loymk8)

[Overview](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3awgwva88sxs) [44](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3awgwva88sxs)

[Requirements](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.enmle7kqgdrk) [44](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.enmle7kqgdrk)

[Steps](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.7ylactos8uhh) [45](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.7ylactos8uhh)

[**CONCLUSION**](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.beuf84k8xdrj)[**46**](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.beuf84k8xdrj)

[Lessons learned](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3l990owkaya0) [46](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.3l990owkaya0)

[Future Improvement](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.g2kwflg64vjt) [46](https://docs.google.com/document/d/1SnZdptshkC827HNgXN5mu1atal6rnKJ2Fsn2ol8xrso/edit#heading=h.g2kwflg64vjt)

# **Project Overview**

Our objective is to develop a web-based application for stakeholders who have recently founded an airline named Airline Services Team-6 (or AST6) and are in need of a website that can provide a booking service to their customers. Because they are new in the market, they want their website to be released as fast as possible, and they are giving us 3 months to accomplish their expectations. Needless to say, they consider efficiency, security, reliability and scalability of the utmost importance. A small list of the features that they find absolutely essential:

* Client:

1. UI is responsive, simple but modern.
2. Console interface for users to manage their flights and flight history
3. Search functionality that allows users to sort their options by price/class/etc

* Server:

1. Fast and accurate response and handling logic operation based on user’s input.
2. Connect client-server workflow to database management system

* Database:

1. Scalable: not specific
2. Secure: user’s information
3. Reliable: data should be available all time
4. Consists of a collection of data related to flights (price, number of seats, etc)

## 

# **System Environment**



### Figure 1: 3-tier Architecture diagram

* Hardware & Software:

1. Apache2
2. Visual Studio Code (latest)
3. OpenVPN (future)

* RDBMS: MySQL community server (v8.0.17)
* Host: Home server (future)
* Frameworks & its core dependencies

1. Node.js (v11.10.1), npm (v6.7.0)
2. Front-end: React (v3.0.1), Redux (latest)
3. Back-end: express.js (v4.16.1) and mysql (connector, v2.17.1)

# Functional Requirements

1. **Users and how users access your system**

There is only one type of user which is customer/ client to our airline services. All the flight information and processes will be pre-set and simulated.

\*\* Users must sign up to start using our services.

* 1. Sign-Up

Users will be prompted to enter some information:

* + - First name, middle initial and last name
    - Email. This is important because users will have to use email to sign in our services, to get email confirmation (see 2-factor authentication, page 5), or to reset their password
    - Password (at least 6 characters, at least 1 special character)
    - User\_id (not shown to user): generated by sha1(email)
  1. Sign-In
  + Users can sign in using registered email and password
  1. Reset Password
* The function invokes when users click the ‘Forgot password’ button.
* It will then ask the user to provide the email to receive reset-password link.

1. **Functionality/features, functional processes and I/O(s)**

User Dashboard: When users sign in, they will have access to dashboard where they can search for flights, reserve flights, change their profile and as well as access to flight management

* + - 1. Search for flights:
* Users can pick departure and destination
* Users can refine search options

i. Based on Roundtrip or one-way

ii. Based on depart/ arrive time and number of passenger

iii. Based on price range (Allow users to set max price)

iv. Based on price sort (lowest to highest)

v. Based on flight classes (First Class, Economy Plus, or Economy)

* + - 1. Book flight: After users complete flight search and ready to pick up flight line
* Users can start to reserve it by entering more personal information such as passport/ DL number, and assume all the payment is valid. Then, users will be prompted to confirm or cancel the reservation

I. Confirm: Users will receive a confirmation email for reservation if email is entered

II. Cancel booking by click on Modify (in Flight Summary)

* Finally, users will be redirected back to state of searching for a flight
  + - 1. Profile edit:

Users can update their password and set their preferences:

* + - Preferred Flight Class: next time they search, their flight class will be set as their default, they can change it anytime
    - Preferred Depart/ arrive time
    - Preferred Max price
    - Preferred Sort by
      1. Booking detail: users can view information about their flights booked with our airline.
* Users can use this feature to cancel booking for one or more passengers

# Non-functional Issues

* **Graphical User Interface (GUI)**

We will be building a Graphical User Interface for this application using React, Redux, HTML and CSS3/Bootstrap. To use our application to search for flights, users will have to create an account with sign up form using an ‘Enroll now’ button that will be placed in the center of the page. If they are not signed in and try to access via direct url, they will be redirected to the Welcome page where users can sign in using the form with their registered email and password. Also in the Welcome page, users can reset their password with ‘Forgot password’ using their registered email address. This will allow us to send them a verification email and allow them to change their password.

Once users sign in, they can search for flights using our search bar which will be placed at the top of the page. When they search, they will fill in their departing location and desired destination, as well as departure and return dates. Users will then click search or press enter to start querying for their flights, then the page will display a list of flights matching the given criteria in our database. Users can open up advanced search to refine some search options as well as prioritization for time in day and flight classes. Moreover, users will be able to sort the returned flights by total duration/number of stops and price, they will also be able to set the min and max price when searching so they do not have to view tickets outside of their budget. Having these search options will allow users to find a flight that they need in the most streamlined way. In addition, users can change their profile by clicking a button in the upper right part of user dashboard. This will bring users to profile page that allows them to change their password and change their preferences. There will be a menu on the left of the page that allows them to do things such as manage their flight information, change or upgrade their flight, check-in their flight, or cancel entirely.

* **Security and miscellaneous**
  1. Authorization:

The security of users will be protected by email address and password. Enrolled user​ ​account​ ​information​ ​will​ ​be​ ​securely​ ​stored​ ​in​ the database.​ ​​​In​ ​order​ ​to​ ​login​ ​to the​ ​system​, the ​user​ ​must​ ​provide​ ​an​ ​existing​ ​email​ ​account​ ​along​ ​with​ ​the associated​ ​password.​ Meanwhile, if a user happens to forget password, the user have to reset his password before signing in to the system. ​The​ database system ​will​ ​be​ ​implemented​ ​using​ ​local host ​providing​ connection​ ​to​ ​server.

* 1. Secure sign-in: two-factor authentication (a confirmation code will be sent to user’s registered email)
  2. User’s information is encrypted (simple encryption) before persisting into the database system
  3. Simulated flight information

Each flight will have a maximum number of seats and each person can not double-book the same flights. When the user enters a search query, a series of desired flights will be displayed, with the number of seats left. If the number of seats is zero, that flight will not be shown to the user, even if it meets their other criteria.

* 1. Maintainability and scalability

System will be designed so it will be easy to maintain and scale up when the business grows

Also, it depends on further requirements from the stakeholders

* 1. Reliability of booking/flight information

All the reservation/ flight information will be persisted and secured

* 1. Performance of this booking service (Times, overall experience, and etc)

In this AST6 project, we implement the concurrently popular technology Node.js and React to build the client side and server side.

## 

# **E/R Diagram**

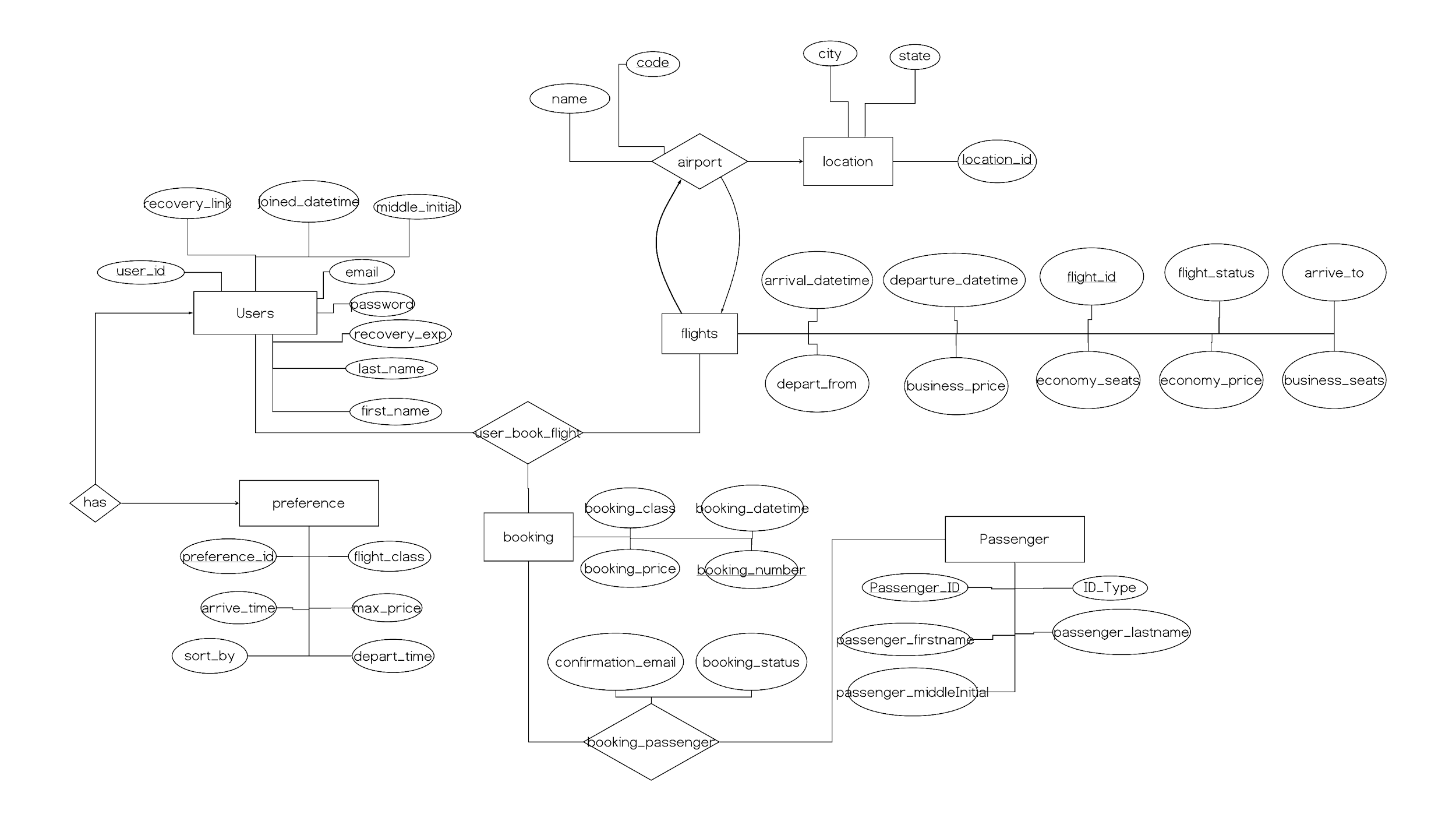
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Figure 2: E/R diagram for AST6 Airline Online Services