Flask Routing Open Source Report

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Code Repository	• **Flask**: https://github.com/pallets/flask/ • **werkzeug**: https://github.com/pallets/werkzeug
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Who worked with this?	Tariq, Sungho Ahsan

flask.Flask.route()

Purpose

What does this tech do for you in your project?	This method handles the URL route registration for the server.
Where specifically is this tech used in your project?	This is used in /flask_server.py (https://github.com/rdstrach/CSE312_Group_Project/blob/main/flask_server.py) to route the following paths: • '/' @L25 • '/text_messages' @L34 • '/login' @L39/43 • '/register' @L61/76 • '/logout' @L81 • '/settings' @L117/164 • Websocket connections '/DM_websocket' @L135 and '/upvote' @L171

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Documentation	• https://flask.palletsprojects.com/en/2.1.x/api/#flask.Flask.route • https://flask.palletsprojects.com/en/2.1.x/api/#url-route-registrations
How does this technology do what it does for you in the Purpose section of this report?	• The following methods are part of the Flask class in flask/src/flask/app.y that sets up the structure for defining routing behavior, and has shared behavior with class flask.Scaffold https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L98 https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L61 • The class parameters for module name, static url path, static folder, static host, host matching, subdomain matching, template folder, instance path, instance relative config, and root path are passed to the class, and defined through __init__() https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L384 • Information passed to and from wrappers like class flask.wrappers.Request, flask.wrappers.Response,

flask.templating.Environment in order to further handle pathing, requests, responses, and template rendering
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L197
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L201
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L206

- Routing behavior can be designated using the decorator function flask.Scaffold.route() that registers the provided URL rules and options, as well endpoints using flask.Scaffold.endpoint() that links them through a dictionary
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L414
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L513

- Routing behavior is ultimately set using the add_url_rule() function found in both the Flask and Scaffold class
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L1038
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L446

- The add_url_rule() takes in the given URL rule. Options, and methods and adds the new mapped endpoints using self.url_map.add() that is imported through the werkzeug.Routing class
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L1086
https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L489

- The werkzeug.Routing manages the endpoint mappings through a dictionary:
https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L15

- The werkzeug.routing.Rules and werkzeug.routing.Mapping stores the rules/options/methods and mappings as class parameters respectively
https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L558
https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L1417

- The werkzeug.routing.Mapping.add() appends rules to the werkzeug.routing.Rules/RuleFactory classes, and the endpoints to the map
https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L1539

Where is the specific code that does what you use the tech for?	- Class flask.Flask: https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L98 - Class flask.Scaffold: https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L61 - flask.Flask.__init__(): https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L384 - flask.Flask instantiation of Request, Response, Environment https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L197 https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L201 https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L206 - flask.Scaffold.route(): https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L414 - flask.Scaffold.endpoint(): https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L513 - flask.Flask.add_url_rule(): https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L1038 - flask.Scaffold.add_url_rule(): https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/scaffold.py#L446 - flask.Flask.url_map_add(): https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L1086 - flask.Flask.url_map_class(): https://github.com/pallets/flask/blob/a03719b01076a5bfdc2c8f4024eda7b874614bc1/src/flask/app.py#L489 - werkzeug/src/werkzeug/routing.py Mapping Management: https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L15 - werkzeug.routing.Rules: https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L558 - werkzeug.routing.Mapping: https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L558 - werkzeug.routing.Mapping.add(): https://github.com/pallets/werkzeug/blob/bb21bf90b0b121e3ed45b9950b823e4b43a81fd8/src/werkzeug/routing.py#L1539

flask.Flask.redirect()

Purpose

What does this tech do for you in your project?	This method handles the URL route redirection for the server.
Where specifically is this tech used in your project?	This is used in /flask_server.py (https://github.com/rdstrach/CSE312_Group_Project/blob/main/flask_server.py) to redirect the following paths: • '/text_messages' to '/' @L37

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Documentation	• https://flask.palletsprojects.com/en/2.1.x/api/#flask.redirect • https://flask.palletsprojects.com/en/2.1.x/quickstart/#redirects-and-errors • https://tedboy.github.io/flask/generated/werkzeug.redirect.html
How does this technology do what it does for you in the Purpose section of this report?	• The class Flask carries over flask.Flask.redirect() from werkzeug.redirect(), which is passed arguments defining the new location, status code, and a WSGI Response object https://github.com/pallets/werkzeug/blob/c7ae2fea4fb229ffd71187c2b665874c91b96277/src/werkzeug/utils.py#L242 • werkzeug.redirect() initializes and returns a modified WSGI Response object that redirects clients to that target location, with supported codes 301-303, 305, 307, 308. https://github.com/pallets/werkzeug/blob/c7ae2fea4fb229ffd71187c2b665874c91b96277/src/werkzeug/utils.py#L266 https://github.com/pallets/werkzeug/blob/c7ae2fea4fb229ffd71187c2b665874c91b96277/src/werkzeug/utils.py#L276 https://github.com/pallets/werkzeug/blob/c7ae2fea4fb229ffd71187c2b665874c91b96277/src/werkzeug/utils.py#L287 • In werkzeug.redirect(), the returned Response Object is built with set redirect information if the location is valid in lines 270-284

	https://github.com/pallets/werkzeug/blob/c7a e2fea4fb229ffd71187c2b665874c91b96277/src /werkzeug/utils.py#L270
Where is the specific code that does what you use the tech for?	• flask.Flask.redirect() import: https://github.com/pallets/flask/blob/a03719b 01076a5bfdc2c8f4024eda7b874614bc1/src/flas k/app.py#L22 • werkzeug.redirect(): https://github.com/pallets/werkzeug/blob/c7a e2fea4fb229ffd71187c2b665874c91b96277/src /werkzeug/utils.py#L242 • werkzeug.redirect() response generation: https://github.com/pallets/werkzeug/blob/c7a e2fea4fb229ffd71187c2b665874c91b96277/src /werkzeug/utils.py#L266 https://github.com/pallets/werkzeug/blob/c7a e2fea4fb229ffd71187c2b665874c91b96277/src /werkzeug/utils.py#L270 https://github.com/pallets/werkzeug/blob/c7a e2fea4fb229ffd71187c2b665874c91b96277/src /werkzeug/utils.py#L287 https://github.com/pallets/werkzeug/blob/c7a e2fea4fb229ffd71187c2b665874c91b96277/src /werkzeug/utils.py#L276