

Code :

```
import random

class Advertiser:

    def __init__(self, name, budget):

        self.name = name

        self.budget = budget

    def bid(self, bid_request):

        bid_price = random.uniform(0.1, 1) # Simulated bid price

        return bid_price

class BidRequest:

    def __init__(self, user_demographics):

        self.user_demographics = user_demographics

class Auction:

    def __init__(self, advertisers):

        self.advertisers = advertisers

    def conduct_auction(self, bid_request):

        bids = {}

        for advertiser in self.advertisers:

            bid_price = advertiser.bid(bid_request)

            bids[advertiser.name] = bid_price

        winning_advertiser = max(bids, key=bids.get)

        return winning_advertiser, bids[winning_advertiser]

# Simulated data

advertiser1 = Advertiser("Advertiser 1", 100)

advertiser2 = Advertiser("Advertiser 2", 150)

advertisers = [advertiser1, advertiser2]

bid_request = BidRequest({"age": 25, "gender": "male", "location": "US"})

auction = Auction(advertisers)

winner, winning_bid = auction.conduct_auction(bid_request)

print("Winner:", winner)

print("Winning Bid:", winning_bid)
```