@startuml  
**title** SwimWorkoutBuilder — Class Diagram (MVP)  
  
**skinparam** packageStyle **rectangle  
skinparam** classAttributeIconSize 0  
**skinparam** shadowing **false  
skinparam** linetype polyline  
  
*'========================  
' Packages  
'========================***package** "model" {  
 **class** Swimmer {  
 +id: UUID  
 +firstName: String  
 +lastName: String  
 +team: String  
 +seedTimes: Map<StrokeType, TimeSpan>  
 }  
  
 **class** Workout {  
 +id: UUID  
 +name: String  
 +notes: String  
 +course: Course  
 +createdAt: Instant  
 +updatedAt: Instant  
 +groups: List<SetGroup>  
 +totalDistance(): long  
 +totalSwimTime(): TimeSpan  
 +totalRestTime(): TimeSpan  
 +totalDuration(): TimeSpan  
 }  
  
 **class** SetGroup {  
 +name: String  
 +reps: int  
 +notes: String  
 +sets: List<SwimSet>  
 }  
  
 **class** SwimSet {  
 +stroke: StrokeType  
 +reps: int  
 +distancePerRep: Distance  
 +effort: Effort  
 +course: Course  
 +notes: String  
 +goalTime: TimeSpan  
 +equipment: Set<Equipment>  
 }  
  
 **class** Distance {  
 +ofYards(y: long): Distance  
 +ofMeters(m: long): Distance  
 +toYards(): double  
 +toMeters(): double  
 }  
  
 **class** TimeSpan {  
 +ofMinutesSecondsMillis(m: int, s: int, ms: int): TimeSpan  
 +toSeconds(): double  
 +toMillis(): long  
 }  
  
 **enum** Course {  
 SCY  
 SCM  
 LCM  
 }  
  
 **enum** Effort {  
 EASY  
 ENDURANCE  
 THRESHOLD  
 RACE\_PACE  
 VO2\_MAX  
 SPRINT  
 }  
  
 **enum** StrokeType {  
 FREESTYLE  
 BACKSTROKE  
 BREASTSTROKE  
 BUTTERFLY  
 INDIVIDUAL\_MEDLEY  
 KICK  
 DRILL  
 }  
  
 **enum** Equipment {  
 FINS  
 PADDLES  
 KICK\_BOARD  
 PULL\_BUOY  
 SNORKEL  
 PARACHUTE  
 DRAG\_SOCKS  
 }  
}  
  
**package** "pacing" {  
 **interface** PacePolicy {  
 +goalSeconds(workout: Workout, set: SwimSet, swimmer: Swimmer, idx: int): double  
 +intervalSeconds(workout: Workout, set: SwimSet, swimmer: Swimmer, idx: int): int  
 }  
 **class** DefaultPacePolicy implements PacePolicy  
 **class** SeedPace  
}  
  
**package** "store" {  
 **class** LocalStore {  
 +saveSwimmer(Swimmer)  
 +loadSwimmers(): List<Swimmer>  
 +saveWorkout(Swimmer, Workout)  
 +loadWorkouts(Swimmer): List<Workout>  
 +deleteWorkout(Swimmer, Workout)  
 }  
 **class** FilesUtil  
}  
  
**package** "state" {  
 **class** AppState {  
 +currentSwimmerProperty(): ObjectProperty<Swimmer>  
 +currentWorkoutProperty(): ObjectProperty<Workout>  
 +getSwimmers(): ObservableList<Swimmer>  
 +setCurrentSwimmer(Swimmer)  
 +setCurrentWorkout(Workout)  
 +persistCurrentWorkout()  
 +refreshSwimmerList()  
 -store: LocalStore  
 }  
}  
  
**package** "ui.workout" {  
 **class** WorkoutBuilderPresenter  
 **class** WorkoutHeaderPane  
 **class** WorkoutBuilderPane  
 **class** WorkoutPane  
 **class** SetFormDialog  
 **class** SetGroupFormDialog  
}  
  
**package** "ui.swimmers" {  
 **class** SwimmerPresenter  
 **class** SwimmerPane  
 **class** ManageSwimmersDialog  
}  
  
**package** "ui" {  
 **class** MainView  
 **class** Theme  
 **class** Icons  
}  
  
*'========================  
' Relationships  
'========================*  
  
Workout \*-- SetGroup  
SetGroup \*-- SwimSet  
SwimSet --> Distance  
SwimSet --> TimeSpan  
Swimmer "1" o-- "seedTimes" TimeSpan  
SwimSet --> StrokeType  
SwimSet --> Effort  
SwimSet --> Course  
SwimSet --> "0..\*" Equipment  
  
PacePolicy <|.. DefaultPacePolicy  
DefaultPacePolicy ..> SeedPace  
DefaultPacePolicy ..> Swimmer  
DefaultPacePolicy ..> Workout  
DefaultPacePolicy ..> SwimSet  
  
AppState o-- LocalStore  
LocalStore ..> FilesUtil  
AppState "1" \*-- "current" Swimmer  
AppState "1" \*-- "current" Workout  
AppState --> "swimmers" Swimmer  
AppState ..> Workout  
AppState ..> Swimmer  
  
WorkoutBuilderPresenter ..> AppState  
WorkoutHeaderPane ..> WorkoutBuilderPresenter  
WorkoutBuilderPane ..> WorkoutBuilderPresenter  
WorkoutPane o-- WorkoutHeaderPane  
WorkoutPane o-- WorkoutBuilderPane  
SwimmerPresenter ..> AppState  
SwimmerPane ..> SwimmerPresenter  
ManageSwimmersDialog ..> AppState  
  
MainView ..> SwimmerPane  
MainView ..> WorkoutPane  
MainView ..> Theme  
MainView ..> Icons  
  
**note right of** WorkoutHeaderPane  
 Binds to presenter refresh tick  
 and AppState.currentWorkout  
 to display totals (dist/time).  
**end note  
  
note right of** WorkoutBuilderPane  
 Renders groups & sets.  
 Opens SetFormDialog/SetGroupFormDialog.  
 Shows equipment icons in rows.  
**end note**@enduml