Project

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```
# Core Libraries
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   4.0.0     v tibble    3.3.0
## v lubridate 1.9.4     v tidyr     1.3.1
## v purrr     1.1.0
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(data.table)
```

```
##
## Attaching package: 'data.table'
##
## The following objects are masked from 'package:lubridate':
##
##     hour, isoweek, mday, minute, month, quarter, second, wday, week,
##     yday, year
##
## The following objects are masked from 'package:dplyr':
##
##     between, first, last
##
## The following object is masked from 'package:purrr':
##
##     transpose
```

```
# Visualization
library(ggplot2)
library(cowplot)
```

```
##
```

```
## Attaching package: 'cowplot'
##
## The following object is masked from 'package:lubridate':
##
##     stamp
```

```
library(gridExtra)
```

```
##
## Attaching package: 'gridExtra'
##
## The following object is masked from 'package:dplyr':
##
##     combine
```

```
# Data Preprocessing
library(caret)
```

```
## Loading required package: lattice
##
## Attaching package: 'caret'
##
## The following object is masked from 'package:purrr':
##
##     lift
```

```
library(recipes)
```

```
##
## Attaching package: 'recipes'
##
## The following object is masked from 'package:stringr':
##
##     fixed
##
## The following object is masked from 'package:stats':
##
##     step
```

```
library(dplyr)
library(forcats)

# Unsupervised Learning
library(stats)

# Modeling and Evaluation
library(caret)
library(randomForest)
```

```
## randomForest 4.7-1.2
## Type rfNews() to see new features/changes/bug fixes.
```

```
##
## Attaching package: 'randomForest'
##
## The following object is masked from 'package:gridExtra':
##
##     combine
##
## The following object is masked from 'package:dplyr':
##
##     combine
##
## The following object is masked from 'package:ggplot2':
##
##     margin
```

```
library(gbm)
```

```
## Loaded gbm 2.2.2
## This version of gbm is no longer under development. Consider transitioning to gbm3, https://github.c
```

```
library(e1071)
```

```
##
## Attaching package: 'e1071'
##
## The following object is masked from 'package:ggplot2':
##
##     element
```

```
library(pROC)
```

```
## Type 'citation("pROC")' for a citation.
##
## Attaching package: 'pROC'
##
## The following objects are masked from 'package:stats':
##
##     cov, smooth, var
```

```
library(MASS)
```

```
##
## Attaching package: 'MASS'
##
## The following object is masked from 'package:dplyr':
##
##     select
```

```
library(cluster)
library(FactoMineR)
library(factoextra)
```

```
## Welcome! Want to learn more? See two factoextra-related books at https://goo.gl/ve3WBa
```

```
library(conflicted)
```

```
# Load required libraries
library(tidyverse)
library(data.table)

# Load the dataset
file_path <- "/Users/vishwasramakrishna/Downloads/DPA_Project_Telco_Customer_Churn_Prediction 2/telco.cs
telco_data <- fread(file_path)

# View dimensions of the dataset
dim(telco_data)
```

```
## [1] 7043   50
```

```
# Check for missing values
missing_summary <- colSums(is.na(telco_data))
cat("Missing Values per Column:\n")
```

```
## Missing Values per Column:
```

```
print(missing_summary)
```

```
##                       Customer ID                            Gender
##                                 0                                 0
##                               Age                          Under 30
##                                 0                                 0
##                    Senior Citizen                           Married
##                                 0                                 0
##                        Dependents               Number of Dependents
##                                 0                                 0
##                           Country                             State
##                                 0                                 0
##                              City                          Zip Code
##                                 0                                 0
##                          Latitude                         Longitude
##                                 0                                 0
##                        Population                           Quarter
##                                 0                                 0
##                  Referred a Friend                Number of Referrals
##                                 0                                 0
##                  Tenure in Months                             Offer
##                                 0                                 0
##                     Phone Service Avg Monthly Long Distance Charges
##                                 0                                 0
##                    Multiple Lines                  Internet Service
##                                 0                                 0
##                     Internet Type           Avg Monthly GB Download
##                                 0                                 0
```

```
##                   Online Security                     Online Backup
##                                 0                                 0
##           Device Protection Plan             Premium Tech Support
##                                 0                                 0
##                      Streaming TV                 Streaming Movies
##                                 0                                 0
##                  Streaming Music                   Unlimited Data
##                                 0                                 0
##                         Contract                Paperless Billing
##                                 0                                 0
##                   Payment Method                   Monthly Charge
##                                 0                                 0
##                    Total Charges                    Total Refunds
##                                 0                                 0
##          Total Extra Data Charges       Total Long Distance Charges
##                                 0                                 0
##                    Total Revenue               Satisfaction Score
##                                 0                                 0
##                  Customer Status                     Churn Label
##                                 0                                 0
##                     Churn Score                              CLTV
##                                 0                                 0
##                   Churn Category                    Churn Reason
##                                 0                                 0
```

```
# Check percentage of missing values
missing_percentage <- (colSums(is.na(telco_data)) / nrow(telco_data)) * 100
cat("\nPercentage of Missing Values:\n")
```

```
##
## Percentage of Missing Values:
```

```
print(missing_percentage)
```

```
##                       Customer ID                            Gender
##                                 0                                 0
##                               Age                          Under 30
##                                 0                                 0
##                    Senior Citizen                           Married
##                                 0                                 0
##                        Dependents               Number of Dependents
##                                 0                                 0
##                           Country                             State
##                                 0                                 0
##                              City                          Zip Code
##                                 0                                 0
##                          Latitude                         Longitude
##                                 0                                 0
##                        Population                           Quarter
##                                 0                                 0
##                  Referred a Friend                Number of Referrals
##                                 0                                 0
##                   Tenure in Months                             Offer
```

```
##                                0                                0
##                     Phone Service Avg Monthly Long Distance Charges
##                                0                                0
##                    Multiple Lines                  Internet Service
##                                0                                0
##                     Internet Type           Avg Monthly GB Download
##                                0                                0
##                   Online Security                    Online Backup
##                                0                                0
##            Device Protection Plan              Premium Tech Support
##                                0                                0
##                      Streaming TV                  Streaming Movies
##                                0                                0
##                  Streaming Music                    Unlimited Data
##                                0                                0
##                         Contract                 Paperless Billing
##                                0                                0
##                   Payment Method                    Monthly Charge
##                                0                                0
##                    Total Charges                     Total Refunds
##                                0                                0
##          Total Extra Data Charges       Total Long Distance Charges
##                                0                                0
##                    Total Revenue                Satisfaction Score
##                                0                                0
##                  Customer Status                     Churn Label
##                                0                                0
##                     Churn Score                             CLTV
##                                0                                0
##                   Churn Category                     Churn Reason
##                                0                                0
```

```r
# Handle missing values in 'Offer' column
telco_data$Offer[is.na(telco_data$Offer)] <- "No Offer"

# Verify missing values for 'Offer' after handling
missing_offer <- sum(is.na(telco_data$Offer))
cat("Missing Values in 'Offer' After Handling:", missing_offer, "\n")
```

```
## Missing Values in 'Offer' After Handling: 0
```

```r
# Handle missing values in 'Internet Type' using the most frequent value (mode)
most_frequent_internet_type <- names(sort(table(telco_data$`Internet Type`), decreasing = TRUE))[1]
telco_data$`Internet Type`[is.na(telco_data$`Internet Type`)] <- most_frequent_internet_type

# Verify missing values for 'Internet Type' after handling
missing_internet_type <- sum(is.na(telco_data$`Internet Type`))
cat("Missing Values in 'Internet Type' After Handling:", missing_internet_type, "\n")
```

```
## Missing Values in 'Internet Type' After Handling: 0
```

```r
library(dplyr)

# Summary statistics for numeric columns
summary(as.data.frame(telco_data)[sapply(telco_data, is.numeric)])
```

```
##       Age         Number of Dependents    Zip Code        Latitude
##  Min.   :19.00   Min.   :0.0000       Min.   :90001   Min.   :32.56
##  1st Qu.:32.00   1st Qu.:0.0000       1st Qu.:92101   1st Qu.:33.99
##  Median :46.00   Median :0.0000       Median :93518   Median :36.21
##  Mean   :46.51   Mean   :0.4687       Mean   :93486   Mean   :36.20
##  3rd Qu.:60.00   3rd Qu.:0.0000       3rd Qu.:95329   3rd Qu.:38.16
##  Max.   :80.00   Max.   :9.0000       Max.   :96150   Max.   :41.96
##    Longitude        Population     Number of Referrals Tenure in Months
##  Min.   :-124.3   Min.   :    11   Min.   : 0.000      Min.   : 1.00
##  1st Qu.:-121.8   1st Qu.:  2344   1st Qu.: 0.000      1st Qu.: 9.00
##  Median :-119.6   Median : 17554   Median : 0.000      Median :29.00
##  Mean   :-119.8   Mean   : 22140   Mean   : 1.952      Mean   :32.39
##  3rd Qu.:-118.0   3rd Qu.: 36125   3rd Qu.: 3.000      3rd Qu.:55.00
##  Max.   :-114.2   Max.   :105285   Max.   :11.000      Max.   :72.00
##  Avg Monthly Long Distance Charges Avg Monthly GB Download Monthly Charge
##  Min.   : 0.00                     Min.   : 0.00           Min.   : 18.25
##  1st Qu.: 9.21                     1st Qu.: 3.00           1st Qu.: 35.50
##  Median :22.89                     Median :17.00           Median : 70.35
##  Mean   :22.96                     Mean   :20.52           Mean   : 64.76
##  3rd Qu.:36.40                     3rd Qu.:27.00           3rd Qu.: 89.85
##  Max.   :49.99                     Max.   :85.00           Max.   :118.75
##  Total Charges    Total Refunds    Total Extra Data Charges
##  Min.   :  18.8   Min.   : 0.000   Min.   :  0.000
##  1st Qu.: 400.1   1st Qu.: 0.000   1st Qu.:  0.000
##  Median :1394.5   Median : 0.000   Median :  0.000
##  Mean   :2280.4   Mean   : 1.962   Mean   :  6.861
##  3rd Qu.:3786.6   3rd Qu.: 0.000   3rd Qu.:  0.000
##  Max.   :8684.8   Max.   :49.790   Max.   :150.000
##  Total Long Distance Charges Total Revenue      Satisfaction Score
##  Min.   :   0.00             Min.   :   21.36   Min.   :1.000
##  1st Qu.:  70.55             1st Qu.:  605.61   1st Qu.:3.000
##  Median : 401.44             Median : 2108.64   Median :3.000
##  Mean   : 749.10             Mean   : 3034.38   Mean   :3.245
##  3rd Qu.:1191.10             3rd Qu.: 4801.15   3rd Qu.:4.000
##  Max.   :3564.72             Max.   :11979.34   Max.   :5.000
##   Churn Score         CLTV
##  Min.   : 5.00   Min.   :2003
##  1st Qu.:40.00   1st Qu.:3469
##  Median :61.00   Median :4527
##  Mean   :58.51   Mean   :4400
##  3rd Qu.:75.50   3rd Qu.:5380
##  Max.   :96.00   Max.   :6500
```

```r
# Check for missing values per column
missing_summary <- colSums(is.na(telco_data))
cat("Missing Values per Column:\n")
```

```
## Missing Values per Column:
```

```r
print(missing_summary)
```

```
##                      Customer ID                           Gender
##                                0                                0
##                              Age                         Under 30
##                                0                                0
##                   Senior Citizen                          Married
##                                0                                0
##                       Dependents               Number of Dependents
##                                0                                0
##                          Country                            State
##                                0                                0
##                             City                         Zip Code
##                                0                                0
##                         Latitude                        Longitude
##                                0                                0
##                       Population                          Quarter
##                                0                                0
##                  Referred a Friend                Number of Referrals
##                                0                                0
##                  Tenure in Months                            Offer
##                                0                                0
##                     Phone Service Avg Monthly Long Distance Charges
##                                0                                0
##                    Multiple Lines                  Internet Service
##                                0                                0
##                     Internet Type            Avg Monthly GB Download
##                                0                                0
##                   Online Security                     Online Backup
##                                0                                0
##             Device Protection Plan               Premium Tech Support
##                                0                                0
##                       Streaming TV                   Streaming Movies
##                                0                                0
##                   Streaming Music                     Unlimited Data
##                                0                                0
##                          Contract                  Paperless Billing
##                                0                                0
##                    Payment Method                    Monthly Charge
##                                0                                0
##                     Total Charges                     Total Refunds
##                                0                                0
##           Total Extra Data Charges        Total Long Distance Charges
##                                0                                0
##                     Total Revenue                 Satisfaction Score
##                                0                                0
##                   Customer Status                      Churn Label
##                                0                                0
##                      Churn Score                             CLTV
##                                0                                0
##                    Churn Category                     Churn Reason
##                                0                                0
```

```r
# Handle missing values for 'Churn Category'
telco_data$`Churn Category`[is.na(telco_data$`Churn Category`)] <- "Not Applicable"

# Verify missing values for 'Churn Category'
missing_churn_category <- sum(is.na(telco_data$`Churn Category`))
cat("Missing Values in 'Churn Category' After Handling:", missing_churn_category, "\n")
```

```
## Missing Values in 'Churn Category' After Handling: 0
```

```r
# Handle missing values for 'Churn Reason'
telco_data$`Churn Reason`[is.na(telco_data$`Churn Reason`)] <- "Not Applicable"

# Verify missing values for 'Churn Reason'
missing_churn_reason <- sum(is.na(telco_data$`Churn Reason`))
cat("Missing Values in 'Churn Reason' After Handling:", missing_churn_reason, "\n")
```

```
## Missing Values in 'Churn Reason' After Handling: 0
```

```r
# Final check for missing values per column
missing_summary <- colSums(is.na(telco_data))
cat("Missing Values per Column:\n")
```

```
## Missing Values per Column:
```

```r
print(missing_summary)
```

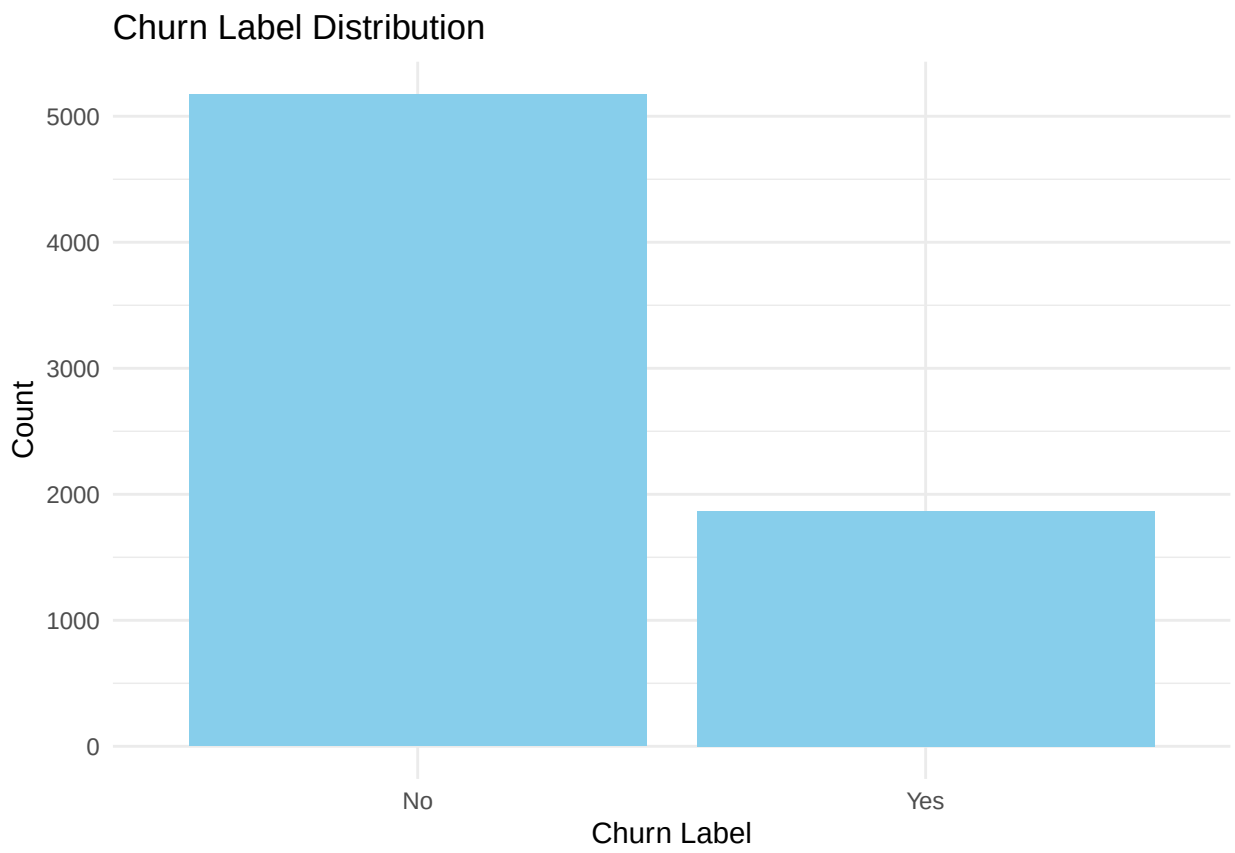
```
##                      Customer ID                           Gender
##                                0                                0
##                              Age                         Under 30
##                                0                                0
##                   Senior Citizen                          Married
##                                0                                0
##                       Dependents              Number of Dependents
##                                0                                0
##                          Country                            State
##                                0                                0
##                             City                         Zip Code
##                                0                                0
##                         Latitude                        Longitude
##                                0                                0
##                       Population                          Quarter
##                                0                                0
##                Referred a Friend               Number of Referrals
##                                0                                0
##                 Tenure in Months                            Offer
##                                0                                0
##                    Phone Service Avg Monthly Long Distance Charges
##                                0                                0
##                   Multiple Lines                  Internet Service
##                                0                                0
##                    Internet Type           Avg Monthly GB Download
```

```
##                                0                                0
##                  Online Security                    Online Backup
##                                0                                0
##            Device Protection Plan             Premium Tech Support
##                                0                                0
##                     Streaming TV                 Streaming Movies
##                                0                                0
##                 Streaming Music                   Unlimited Data
##                                0                                0
##                        Contract                Paperless Billing
##                                0                                0
##                  Payment Method                   Monthly Charge
##                                0                                0
##                   Total Charges                    Total Refunds
##                                0                                0
##          Total Extra Data Charges       Total Long Distance Charges
##                                0                                0
##                   Total Revenue                Satisfaction Score
##                                0                                0
##                 Customer Status                     Churn Label
##                                0                                0
##                     Churn Score                             CLTV
##                                0                                0
##                  Churn Category                   Churn Reason
##                                0                                0
```

```r
# Visualization of the target variable
churn_counts <- table(telco_data$`Churn Label`)
print(churn_counts)
```

```
##
##   No  Yes
## 5174 1869
```

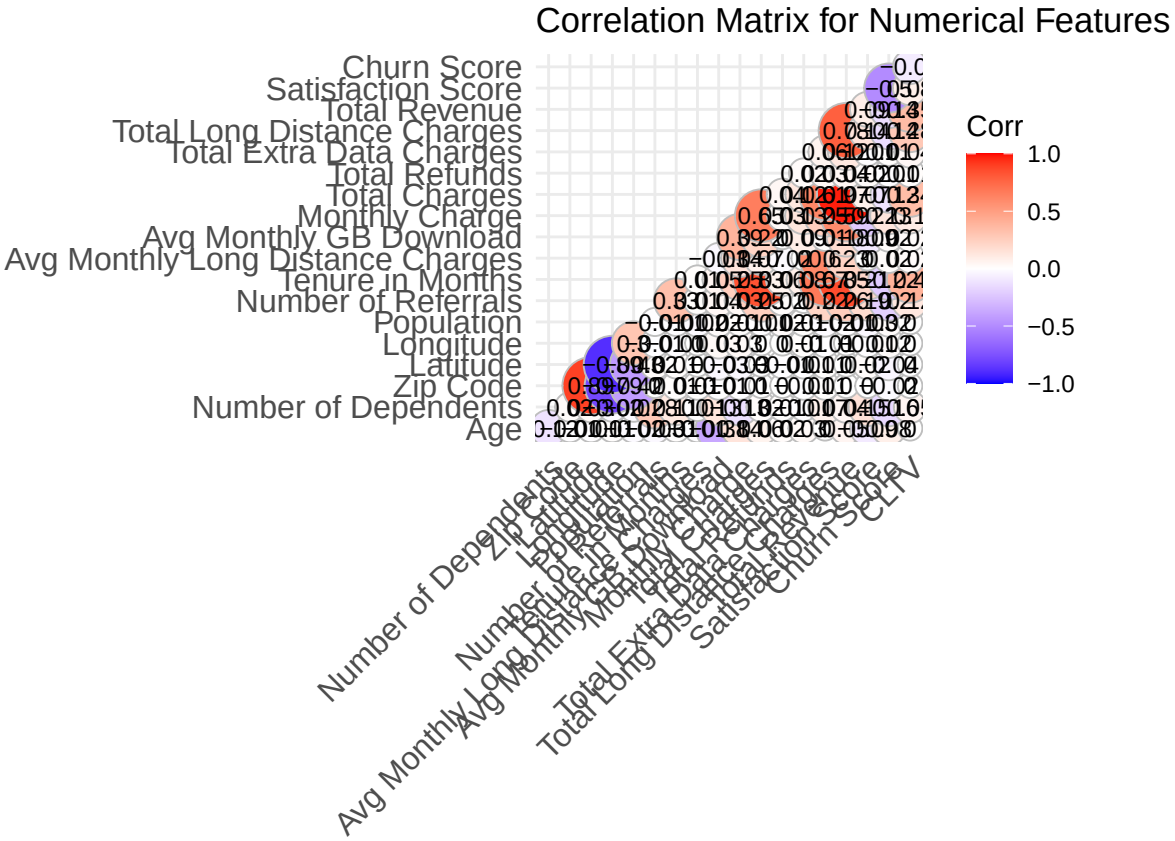
```r
# Load ggplot2 for visualization
library(ggplot2)

# Bar plot of 'Churn Label'
ggplot(telco_data, aes(x = `Churn Label`)) +
  geom_bar(fill = "skyblue") +
  labs(title = "Churn Label Distribution", x = "Churn Label", y = "Count") +
  theme_minimal()
```



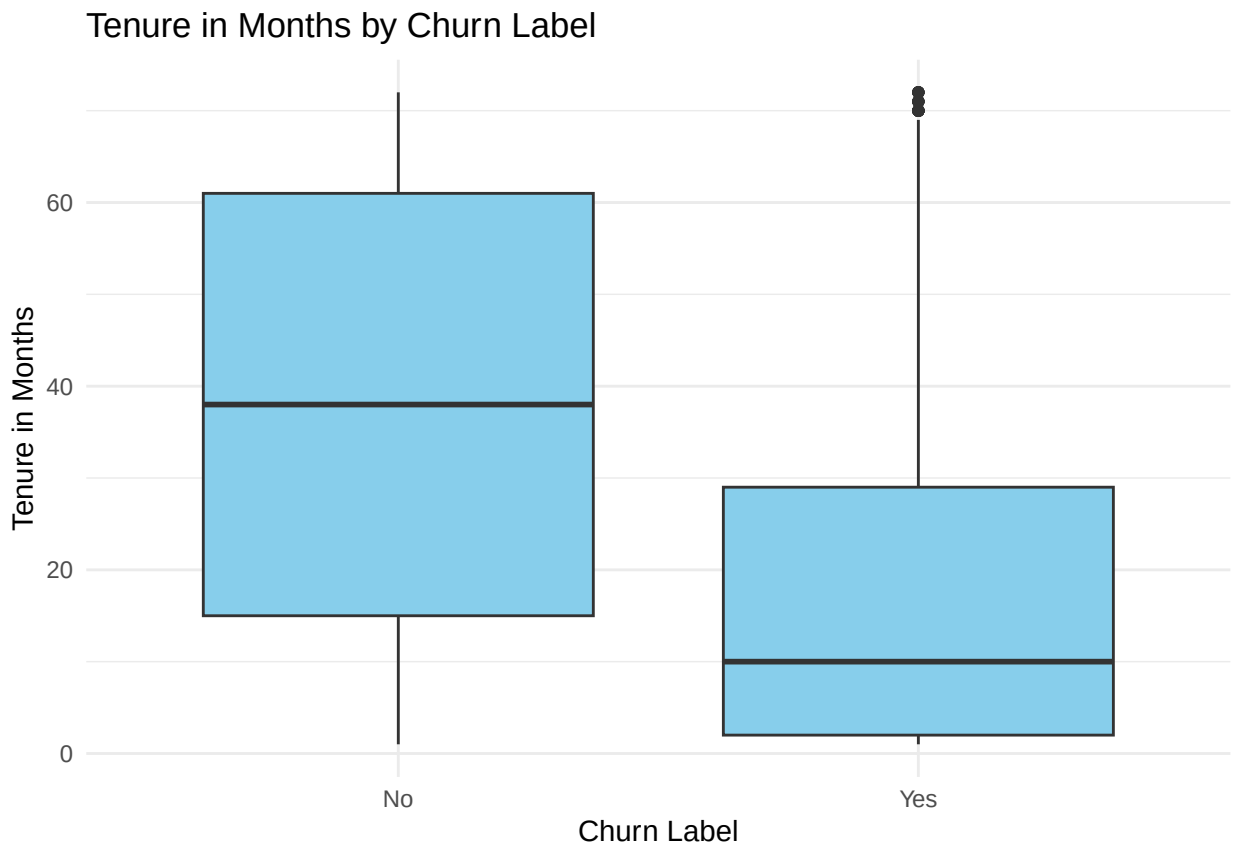

```
# Load necessary libraries
library(dplyr)
library(ggcorrplot)
library(ggplot2)

telco_df <- as.data.frame(telco_data)

numeric_data <- select_if(telco_df, is.numeric)

# Compute correlation matrix
correlation_matrix <- cor(numeric_data, use = "complete.obs")

# Plot heatmap
ggcorrplot(correlation_matrix,
           method = "circle",
           type = "lower",
           lab = TRUE,
           lab_size = 3,
           colors = c("blue", "white", "red"),
           title = "Correlation Matrix for Numerical Features",
           ggtheme = theme_minimal())
```

```
## Warning: `aes_string()` was deprecated in ggplot2 3.0.0.
## i Please use tidy evaluation idioms with `aes()`.
## i See also `vignette("ggplot2-in-packages")` for more information.
```

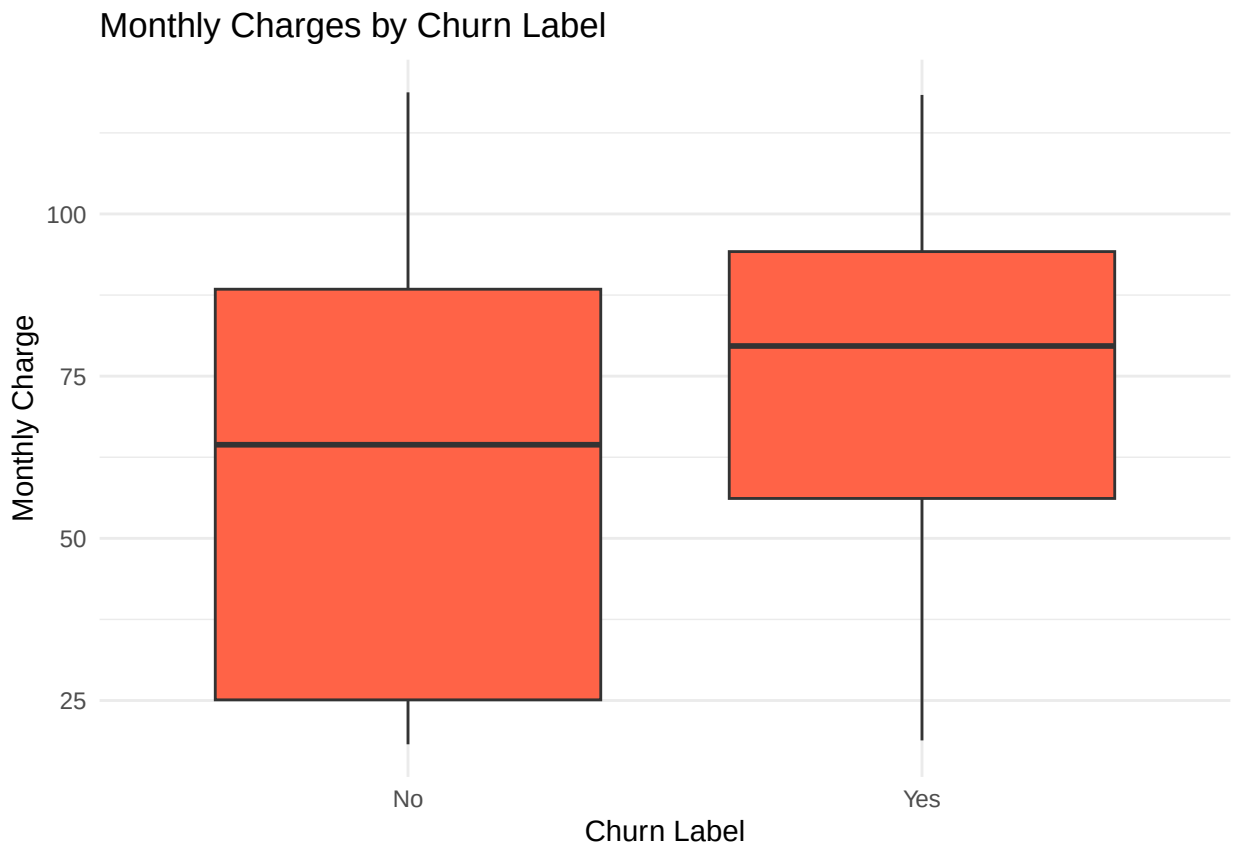
```
## i The deprecated feature was likely used in the ggcorrplot package.
##   Please report the issue at <https://github.com/kassambara/ggcorrplot/issues>.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.
```



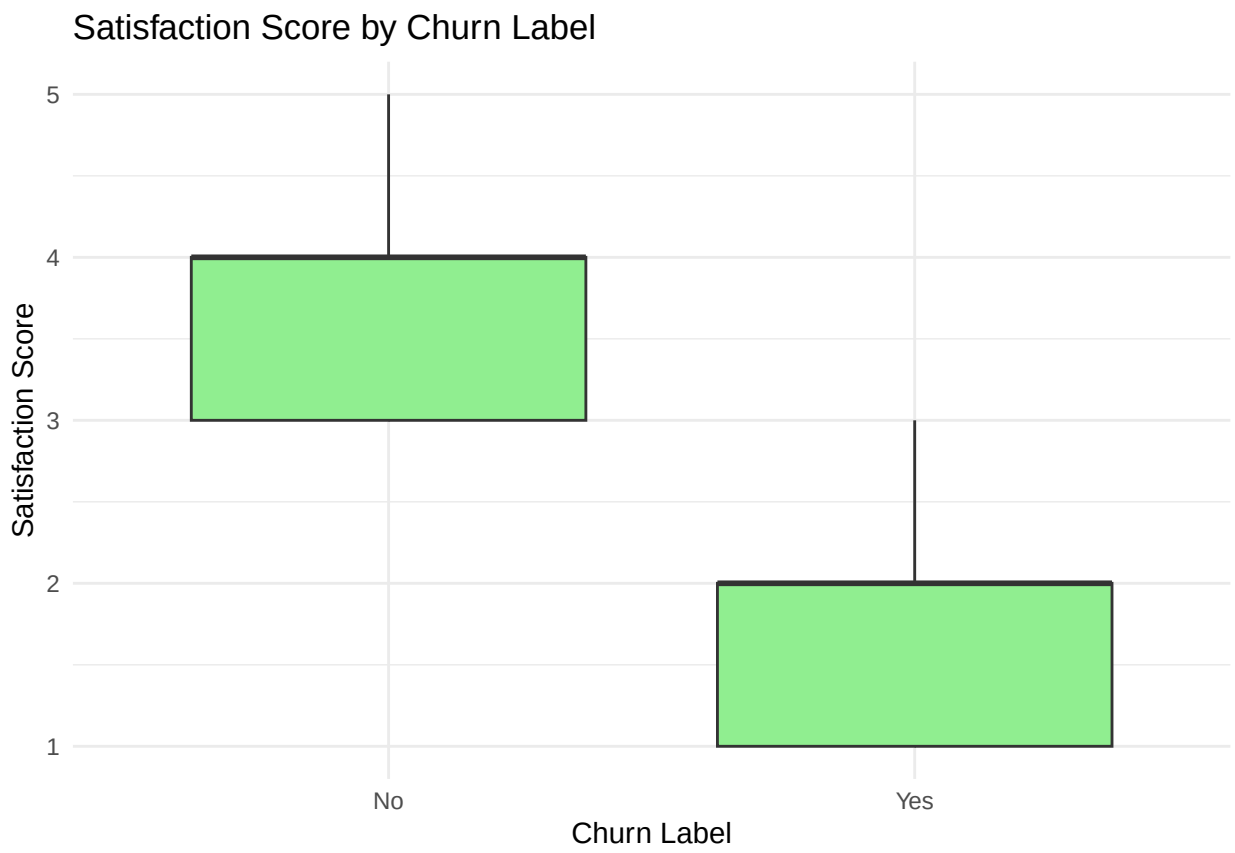

```
library(ggplot2)

# Boxplot: Tenure in Months vs Churn Label
ggplot(telco_data, aes(x = `Churn Label`, y = `Tenure in Months`)) +
  geom_boxplot(fill = "skyblue") +
  labs(title = "Tenure in Months by Churn Label", x = "Churn Label", y = "Tenure in Months") +
  theme_minimal()
```



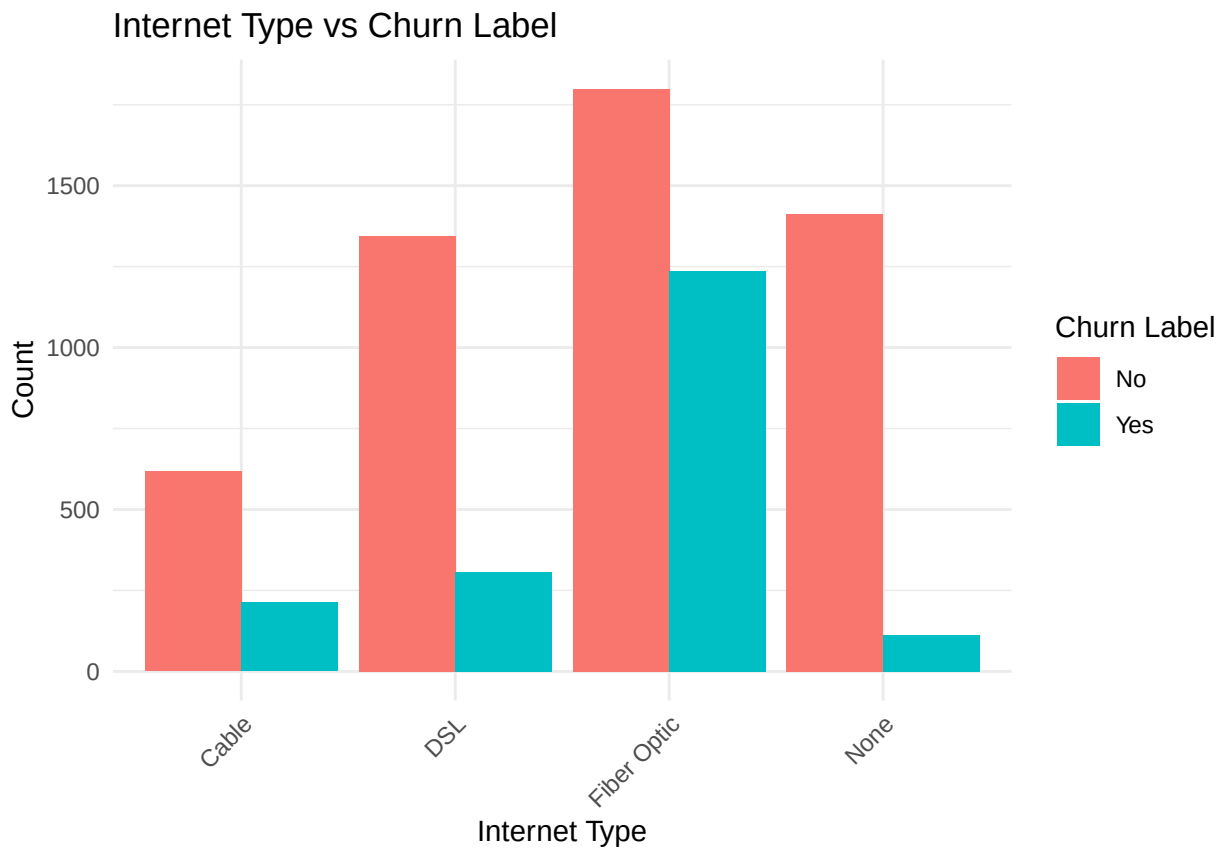

```
# Boxplot: Monthly Charges vs Churn Label
ggplot(telco_data, aes(x = `Churn Label`, y = `Monthly Charge`)) +
  geom_boxplot(fill = "tomato") +
  labs(title = "Monthly Charges by Churn Label", x = "Churn Label", y = "Monthly Charge") +
  theme_minimal()
```



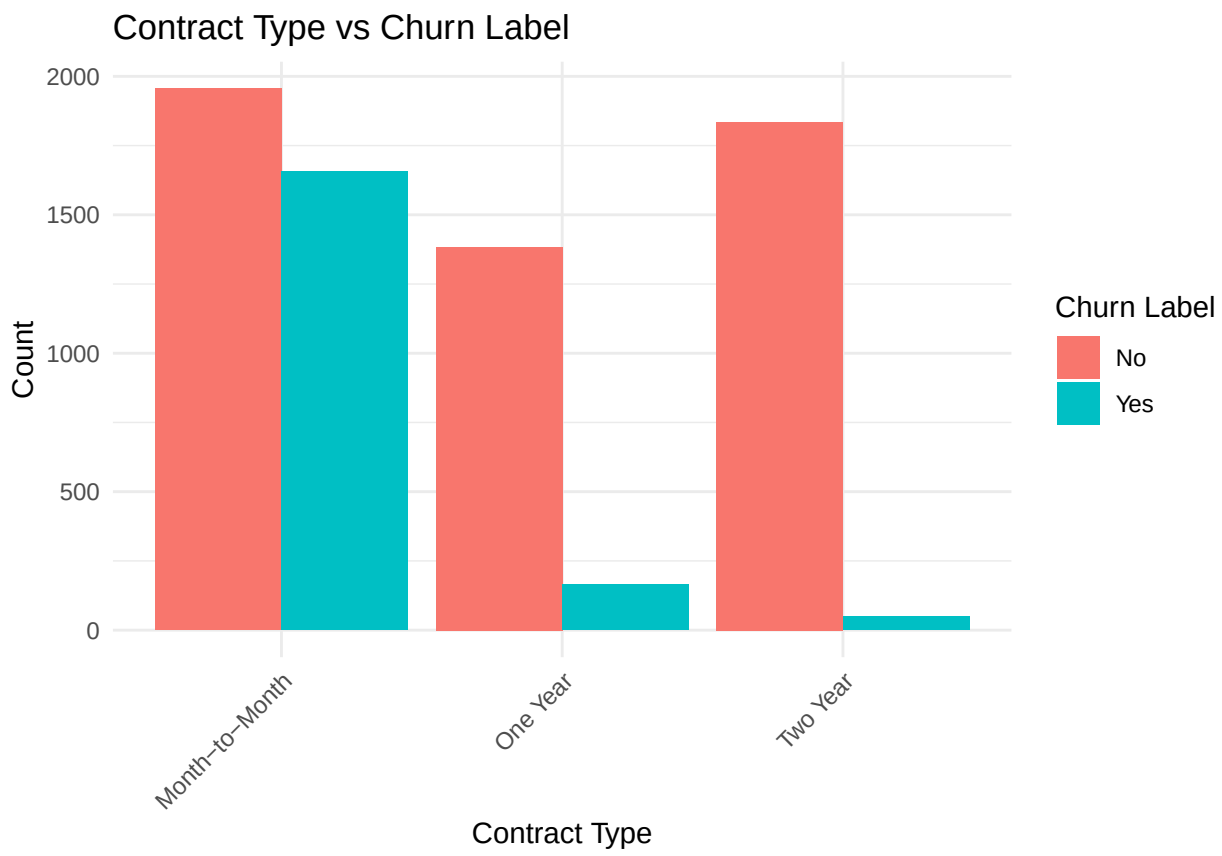

```
# Boxplot: Satisfaction Score vs Churn Label
ggplot(telco_data, aes(x = `Churn Label`, y = `Satisfaction Score`)) +
  geom_boxplot(fill = "lightgreen") +
  labs(title = "Satisfaction Score by Churn Label", x = "Churn Label", y = "Satisfaction Score") +
  theme_minimal()
```




```
library(ggplot2)

# Countplot: Internet Type vs Churn Label
ggplot(telco_data, aes(x = `Internet Type`, fill = `Churn Label`)) +
  geom_bar(position = "dodge") +
  labs(title = "Internet Type vs Churn Label", x = "Internet Type", y = "Count") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```




```r
# Countplot: Contract Type vs Churn Label
ggplot(telco_data, aes(x = Contract, fill = `Churn Label`)) +
  geom_bar(position = "dodge") +
  labs(title = "Contract Type vs Churn Label", x = "Contract Type", y = "Count") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```




```
# Chi-squared test: Internet Type vs Churn Label
internet_type_churn <- table(telco_data$`Internet Type`, telco_data$`Churn Label`)
chi_test_1 <- chisq.test(internet_type_churn)

cat("Chi-squared Test for 'Internet Type' and 'Churn Label':\n")
```

```
## Chi-squared Test for 'Internet Type' and 'Churn Label':
```

```
cat("Chi2 Stat:", chi_test_1$statistic, ", P-value:", chi_test_1$p.value,
    ", Degrees of Freedom:", chi_test_1$parameter, "\n")
```

```
## Chi2 Stat: 653.8321 , P-value: 2.15035e-141 , Degrees of Freedom: 3
```

```
if (chi_test_1$p.value < 0.05) {
  cat("There is a significant relationship between Internet Type and Churn Label.\n\n")
} else {
  cat("No significant relationship between Internet Type and Churn Label.\n\n")
}
```

```
## There is a significant relationship between Internet Type and Churn Label.
```

```
# Chi-squared test: Contract Type vs Churn Label
contract_churn <- table(telco_data$Contract, telco_data$`Churn Label`)
```

```r
chi_test_2 <- chisq.test(contract_churn)

cat("Chi-squared Test for 'Contract' and 'Churn Label':\n")
```

```
## Chi-squared Test for 'Contract' and 'Churn Label':
```

```r
cat("Chi2 Stat:", chi_test_2$statistic, ", P-value:", chi_test_2$p.value,
    ", Degrees of Freedom:", chi_test_2$parameter, "\n")
```

```
## Chi2 Stat: 1445.293 , P-value: 1.440655e-314 , Degrees of Freedom: 2
```

```r
if (chi_test_2$p.value < 0.05) {
  cat("There is a significant relationship between Contract Type and Churn Label.\n")
} else {
  cat("No significant relationship between Contract Type and Churn Label.\n")
}
```

```
## There is a significant relationship between Contract Type and Churn Label.
```

```r
library(recipes)
library(dplyr)
library(caret)

telco_df <- as.data.frame(telco_data)

# Select relevant features
selected_features <- c("Tenure in Months", "Monthly Charge", "Satisfaction Score",
                       "Contract", "Internet Type")

telco_selected <- dplyr::select(telco_df, all_of(selected_features))

# Define preprocessing recipe
rec <- recipe(~ ., data = telco_selected) %>%
  step_dummy(all_nominal_predictors(), one_hot = TRUE) %>%
  step_center(all_numeric_predictors()) %>%
  step_scale(all_numeric_predictors())

# Prep and bake (apply) the transformations
prepped_data <- prep(rec, training = telco_selected)
processed_features <- bake(prepped_data, new_data = telco_selected)

# Check number of resulting features
n_features <- ncol(processed_features)
n_components_value <- min(7, n_features)

# Output
cat("Total Features After Preprocessing:", n_features, "\n")
```

```
## Total Features After Preprocessing: 10
```

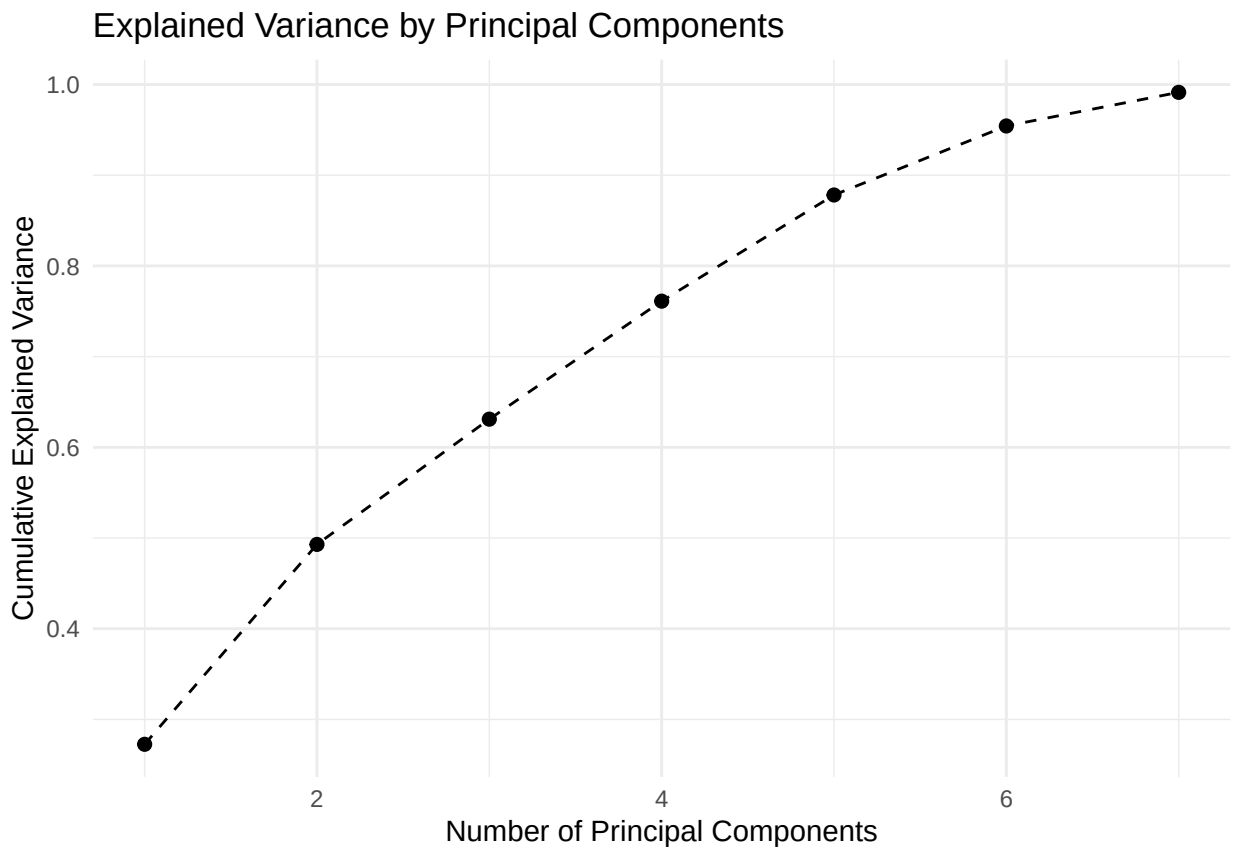
```r
cat("Number of PCA Components to Use:", n_components_value, "\n")
```

```
## Number of PCA Components to Use: 7
```

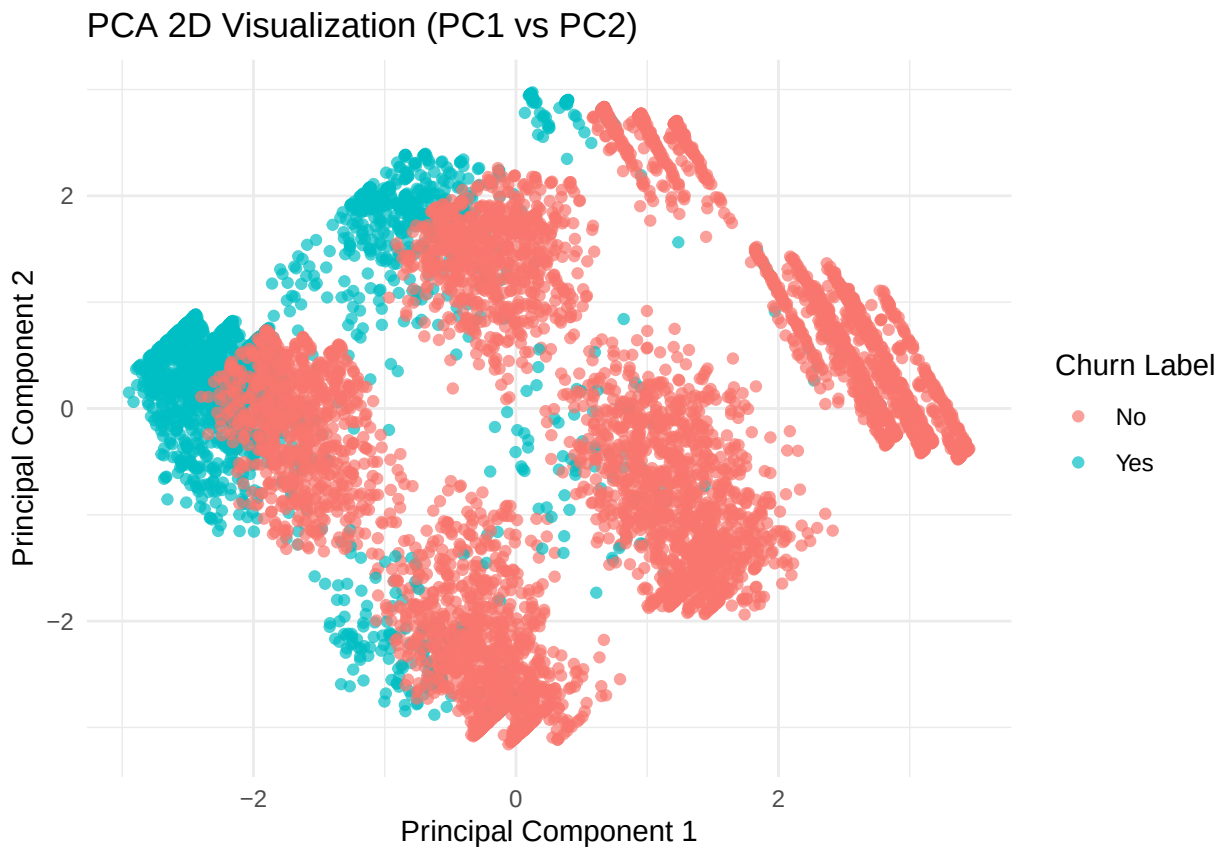
```r
cat("Number of Features:", ncol(processed_features), "\n")
```

```
## Number of Features: 10
```

```r
# Apply PCA
pca_result <- prcomp(processed_features, center = TRUE, scale. = TRUE)

# Get the number of components
n_features <- ncol(processed_features)
n_components <- min(7, n_features)

# Compute cumulative explained variance
explained_variance <- cumsum(pca_result$sdev^2 / sum(pca_result$sdev^2))

# Prepare data for plotting
pca_df <- data.frame(
  Components = 1:n_components,
  CumulativeExplainedVariance = explained_variance[1:n_components]
)

# Plot cumulative explained variance
library(ggplot2)

ggplot(pca_df, aes(x = Components, y = CumulativeExplainedVariance)) +
  geom_line(linetype = "dashed") +
  geom_point(size = 2) +
  labs(title = "Explained Variance by Principal Components",
       x = "Number of Principal Components",
       y = "Cumulative Explained Variance") +
  theme_minimal()
```




```r
library(ggplot2)

# Create a dataframe with PC1 and PC2
pca_df <- as.data.frame(pca_result$x[, 1:2])
colnames(pca_df) <- c("PC1", "PC2")

# Add churn label for coloring
pca_df$ChurnLabel <- as.factor(telco_data$`Churn Label`)

# Plot
ggplot(pca_df, aes(x = PC1, y = PC2, color = ChurnLabel)) +
  geom_point(alpha = 0.7) +
  labs(title = "PCA 2D Visualization (PC1 vs PC2)",
       x = "Principal Component 1",
       y = "Principal Component 2",
       color = "Churn Label") +
  theme_minimal()
```



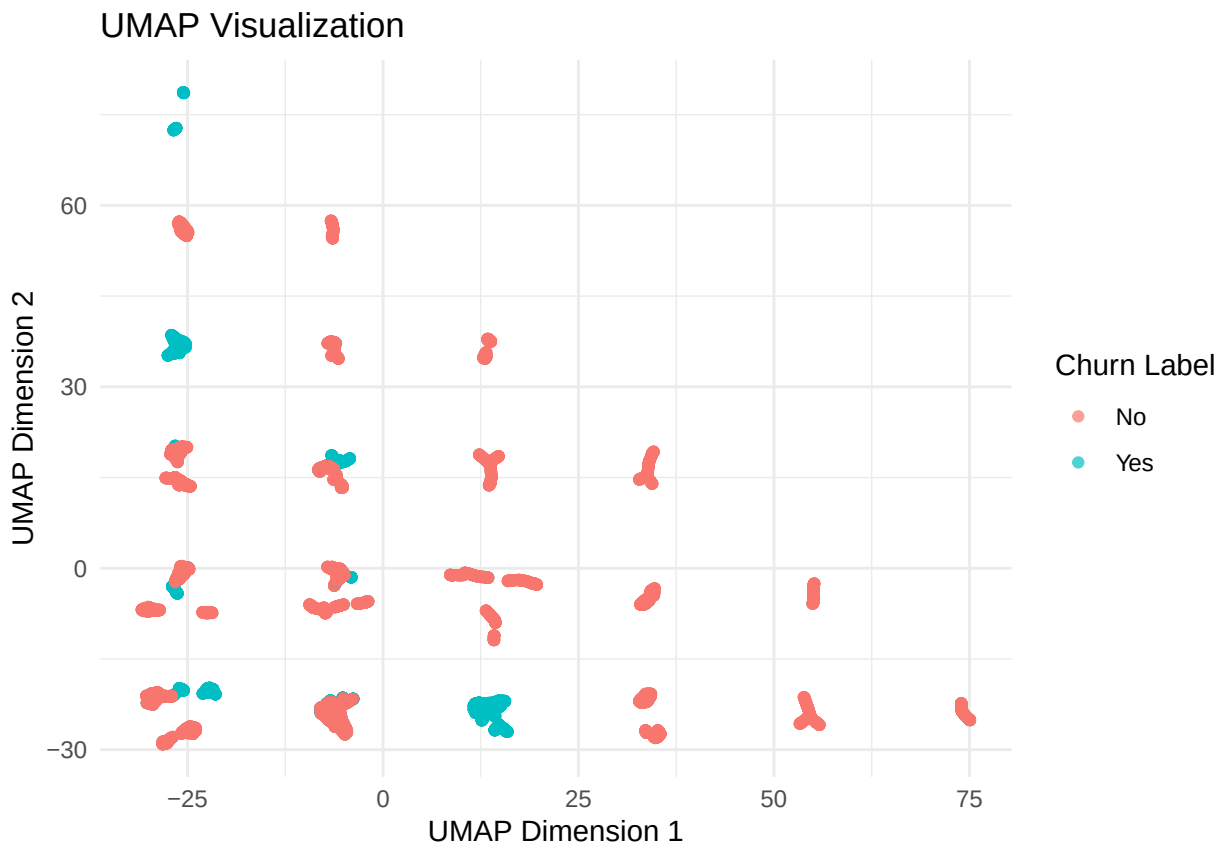

```
library(plotly)
library(conflicted)

# Always prefer plotly's layout instead of graphics::layout
conflicts_prefer(plotly::layout)
```

```
## [conflicted] Will prefer plotly::layout over any other package.
```

```
# Extract first 3 principal components
pca_3d <- as.data.frame(pca_result$x[, 1:3])
colnames(pca_3d) <- c("PC1", "PC2", "PC3")
pca_3d$ChurnLabel <- as.factor(telco_data$`Churn Label`)

# Create 3D scatter plot
plot_ly(
  data = pca_3d,
  x = ~PC1, y = ~PC2, z = ~PC3,
  color = ~ChurnLabel,
  colors = c("steelblue", "tomato"),
  type = "scatter3d",
  mode = "markers",
  marker = list(size = 4, opacity = 0.7)
) %>%
  plotly::layout(
    title = "PCA 3D Visualization (PC1, PC2, PC3)",
```

```
    scene = list(
      xaxis = list(title = "Principal Component 1"),
      yaxis = list(title = "Principal Component 2"),
      zaxis = list(title = "Principal Component 3")
    )
  )
```

```
library(umap)
library(ggplot2)

# Set UMAP configuration
umap_config <- umap.defaults
umap_config$n_neighbors <- 15
umap_config$min_dist <- 0.1
umap_config$random_state <- 42

# Perform UMAP on the processed features
set.seed(42)
umap_result <- umap(as.matrix(processed_features), config = umap_config)

# Convert UMAP layout to dataframe
umap_df <- as.data.frame(umap_result$layout)
colnames(umap_df) <- c("UMAP1", "UMAP2")
umap_df$ChurnLabel <- as.factor(telco_data$`Churn Label`)

# Plot UMAP results
ggplot(umap_df, aes(x = UMAP1, y = UMAP2, color = ChurnLabel)) +
  geom_point(alpha = 0.7) +
  labs(title = "UMAP Visualization",
       x = "UMAP Dimension 1",
       y = "UMAP Dimension 2",
       color = "Churn Label") +
  theme_minimal()
```

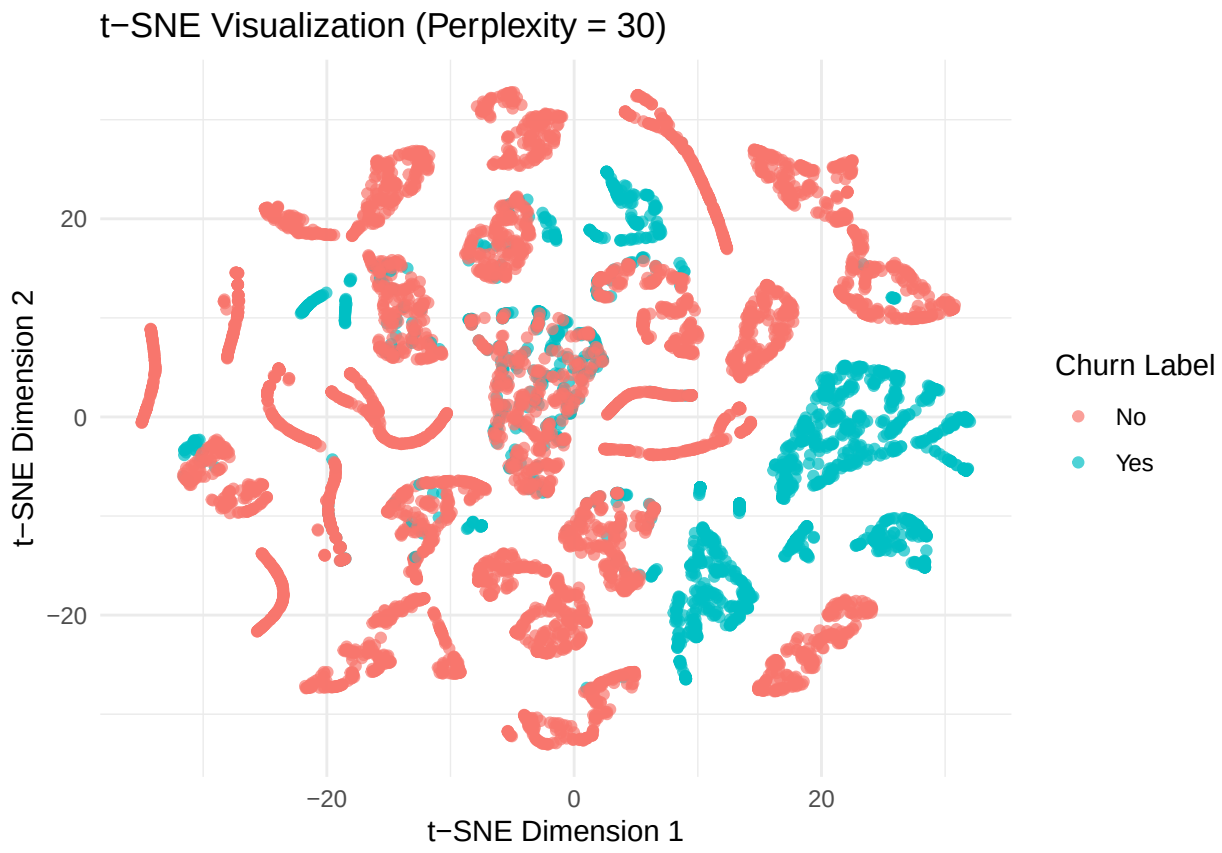



```
library(Rtsne)
library(ggplot2)

# Remove duplicates from the matrix
processed_unique <- unique(as.matrix(processed_features))

duplicate_rows <- duplicated(as.data.frame(processed_features))
filtered_telco_data <- telco_data[!duplicate_rows, ]

# Run t-SNE
set.seed(42)
tsne_result <- Rtsne(
  processed_unique,
  dims = 2,
  perplexity = 30,
  max_iter = 500,
  verbose = TRUE
)
```

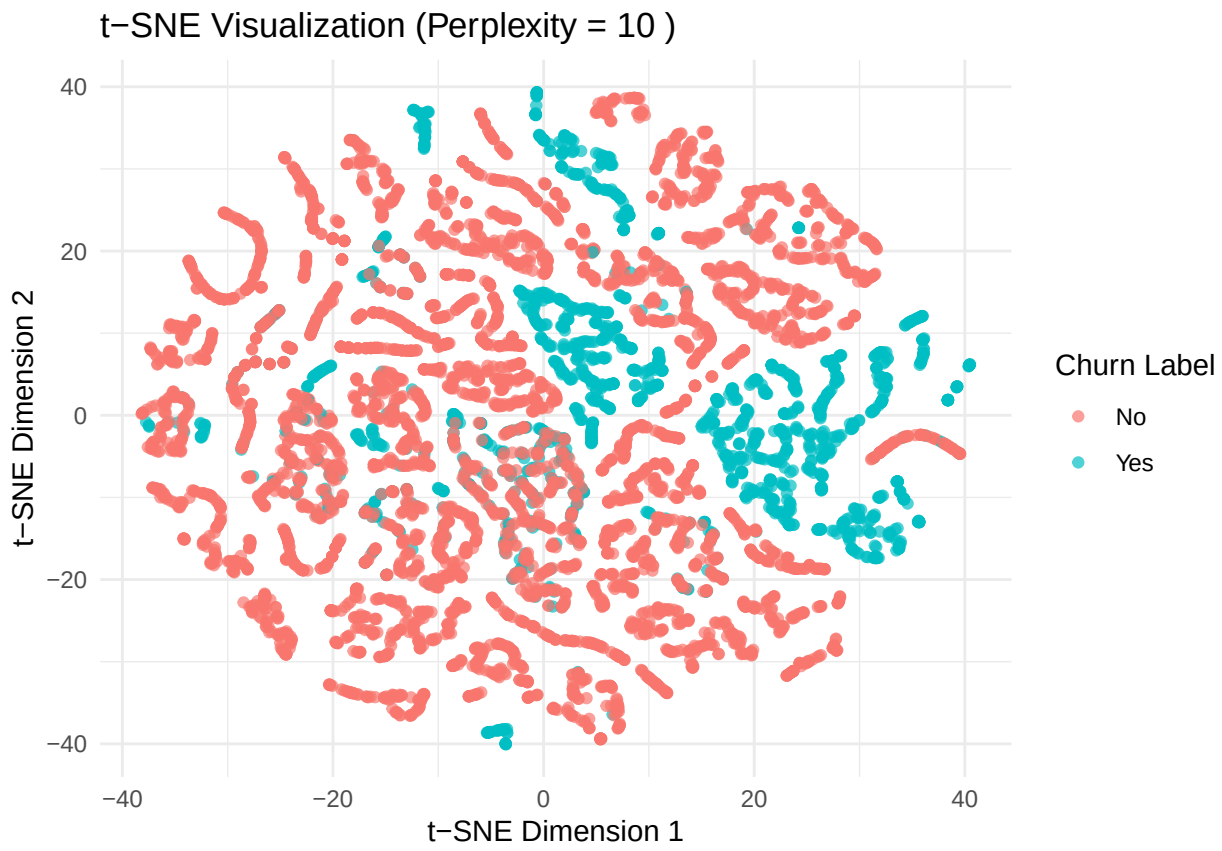
```
## Performing PCA
## Read the 6892 x 10 data matrix successfully!
## Using no_dims = 2, perplexity = 30.000000, and theta = 0.500000
## Computing input similarities...
## Building tree...
## Done in 0.20 seconds (sparsity = 0.015966)!
## Learning embedding...
```

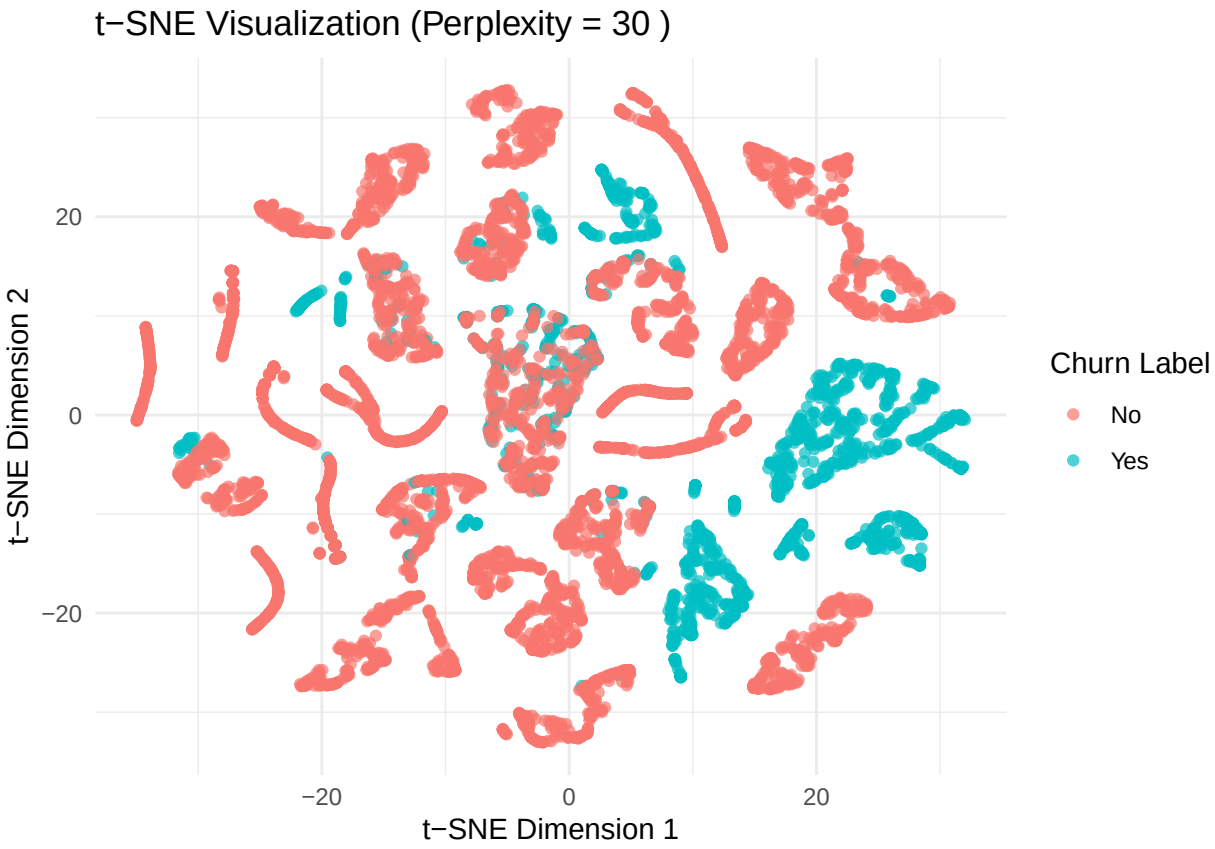
```
## Iteration 50: error is 94.319461 (50 iterations in 0.51 seconds)
## Iteration 100: error is 70.580708 (50 iterations in 0.48 seconds)
## Iteration 150: error is 64.293336 (50 iterations in 0.45 seconds)
## Iteration 200: error is 61.406194 (50 iterations in 0.46 seconds)
## Iteration 250: error is 59.657152 (50 iterations in 0.45 seconds)
## Iteration 300: error is 1.844304 (50 iterations in 0.44 seconds)
## Iteration 350: error is 1.447246 (50 iterations in 0.44 seconds)
## Iteration 400: error is 1.181706 (50 iterations in 0.44 seconds)
## Iteration 450: error is 1.005213 (50 iterations in 0.45 seconds)
## Iteration 500: error is 0.884580 (50 iterations in 0.45 seconds)
## Fitting performed in 4.56 seconds.
```

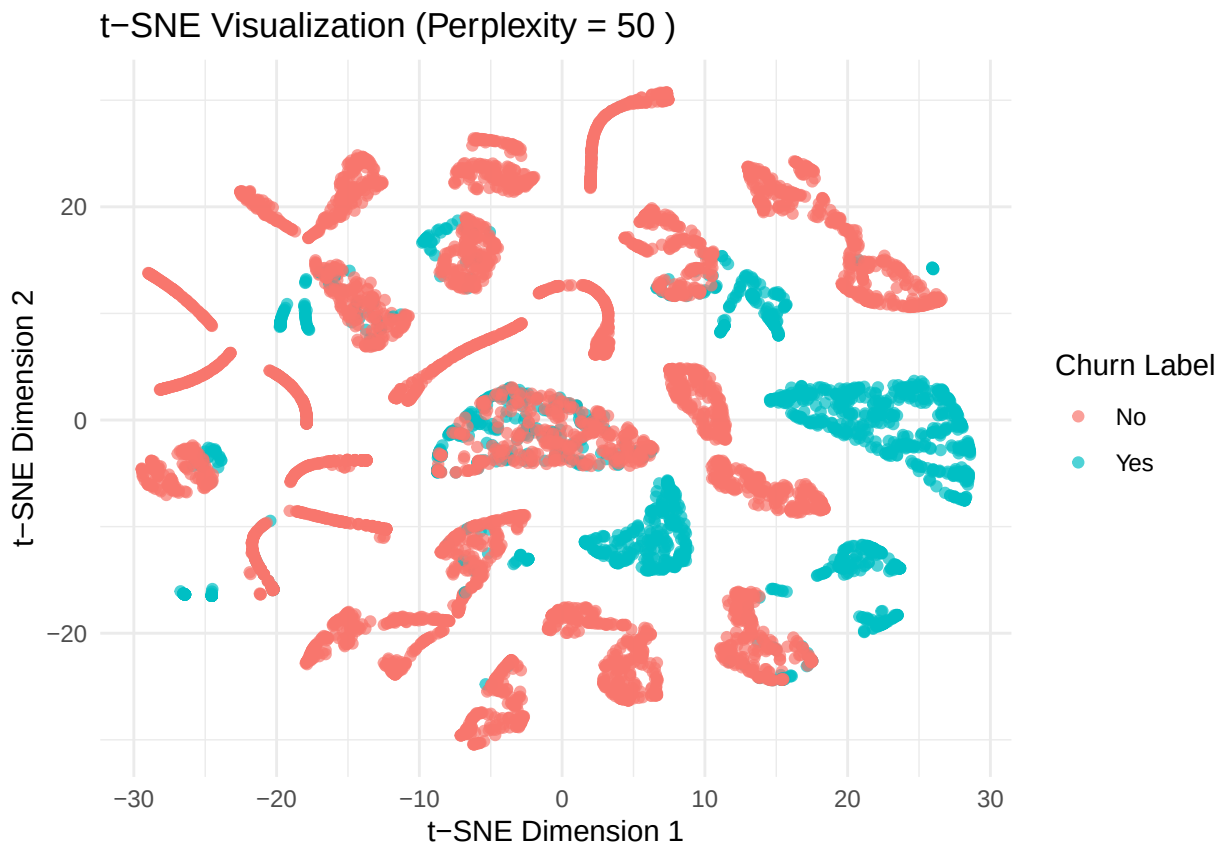
```r
# Convert results to dataframe
tsne_df <- as.data.frame(tsne_result$Y)
colnames(tsne_df) <- c("TSNE1", "TSNE2")
tsne_df$ChurnLabel <- as.factor(filtered_telco_data$`Churn Label`)

# Plot t-SNE results
ggplot(tsne_df, aes(x = TSNE1, y = TSNE2, color = ChurnLabel)) +
  geom_point(alpha = 0.7) +
  labs(title = "t-SNE Visualization (Perplexity = 30)",
       x = "t-SNE Dimension 1",
       y = "t-SNE Dimension 2",
       color = "Churn Label") +
  theme_minimal()
```



```r
library(Rtsne)
library(ggplot2)

# Remove duplicate rows from processed features
processed_unique <- unique(as.matrix(processed_features))

# Filter churn labels accordingly
duplicate_rows <- duplicated(as.data.frame(processed_features))
filtered_telco_data <- telco_data[!duplicate_rows, ]

# Define perplexity values
perplexities <- c(10, 30, 50)

# Loop through perplexity values and plot t-SNE
for (perp in perplexities) {
  set.seed(42)
  tsne_result <- Rtsne(processed_unique,
                       dims = 2,
                       perplexity = perp,
                       max_iter = 500,
                       verbose = FALSE)

  tsne_df <- as.data.frame(tsne_result$Y)
  colnames(tsne_df) <- c("TSNE1", "TSNE2")
  tsne_df$ChurnLabel <- as.factor(filtered_telco_data$`Churn Label`)

  p <- ggplot(tsne_df, aes(x = TSNE1, y = TSNE2, color = ChurnLabel)) +
    geom_point(alpha = 0.7) +
    labs(
      title = paste("t-SNE Visualization (Perplexity =", perp, ")"),
      x = "t-SNE Dimension 1",
      y = "t-SNE Dimension 2",
      color = "Churn Label"
    ) +
    theme_minimal()

  print(p)
}
```

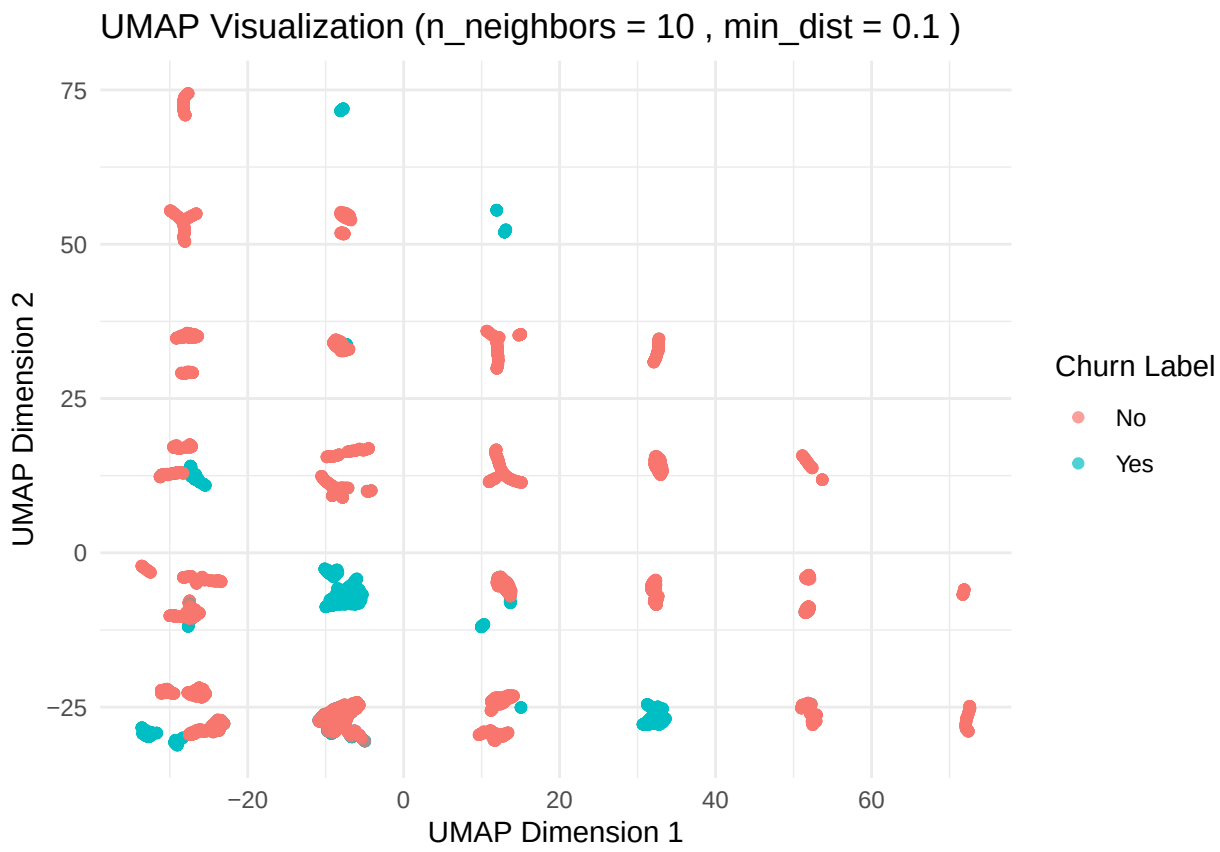

t−SNE Visualization (Perplexity = 10)
t−SNE Dimension 2
t−SNE Dimension 1
40
20
0
−20
−40
−40
−20
0
20
40
Churn Label
No
Yes

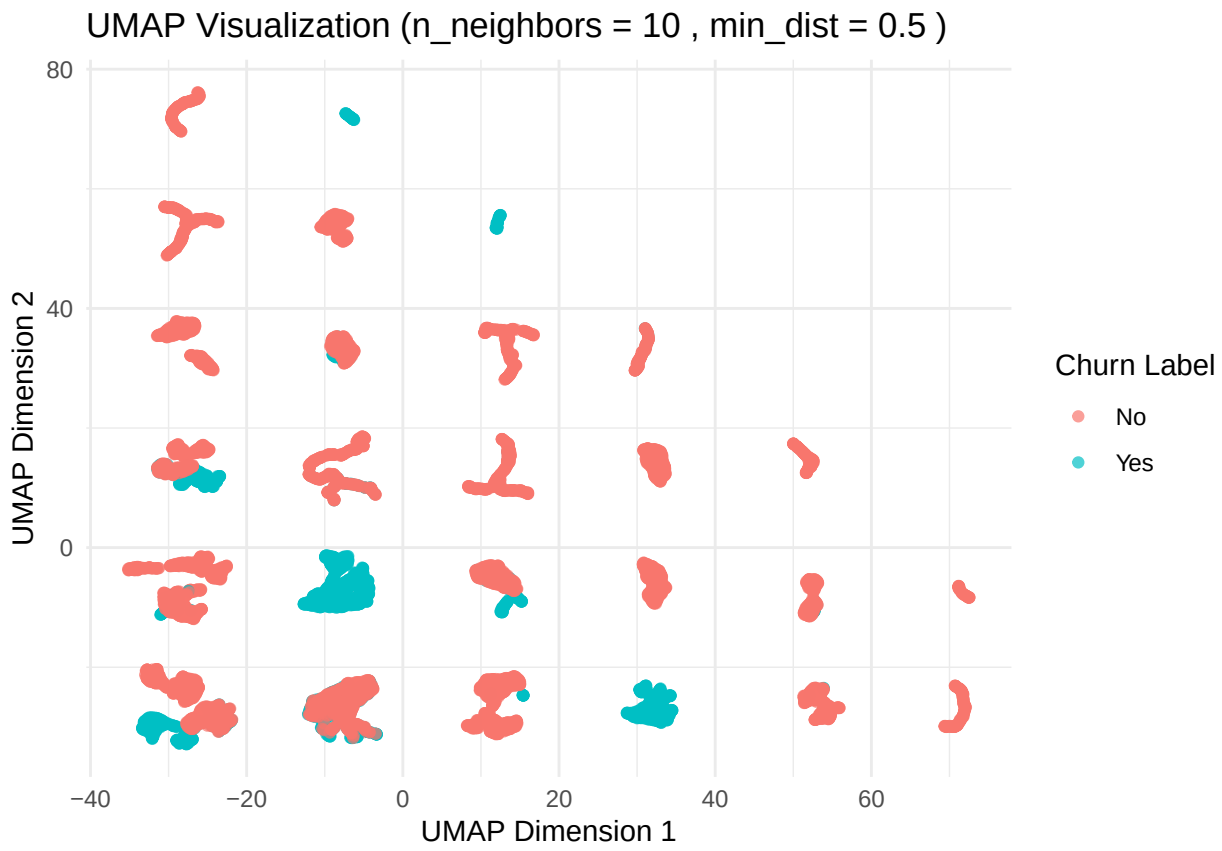

t−SNE Visualization (Perplexity = 30)
t−SNE Dimension 2
20
0
−20
−20
0
20
t−SNE Dimension 1
Churn Label
No
Yes

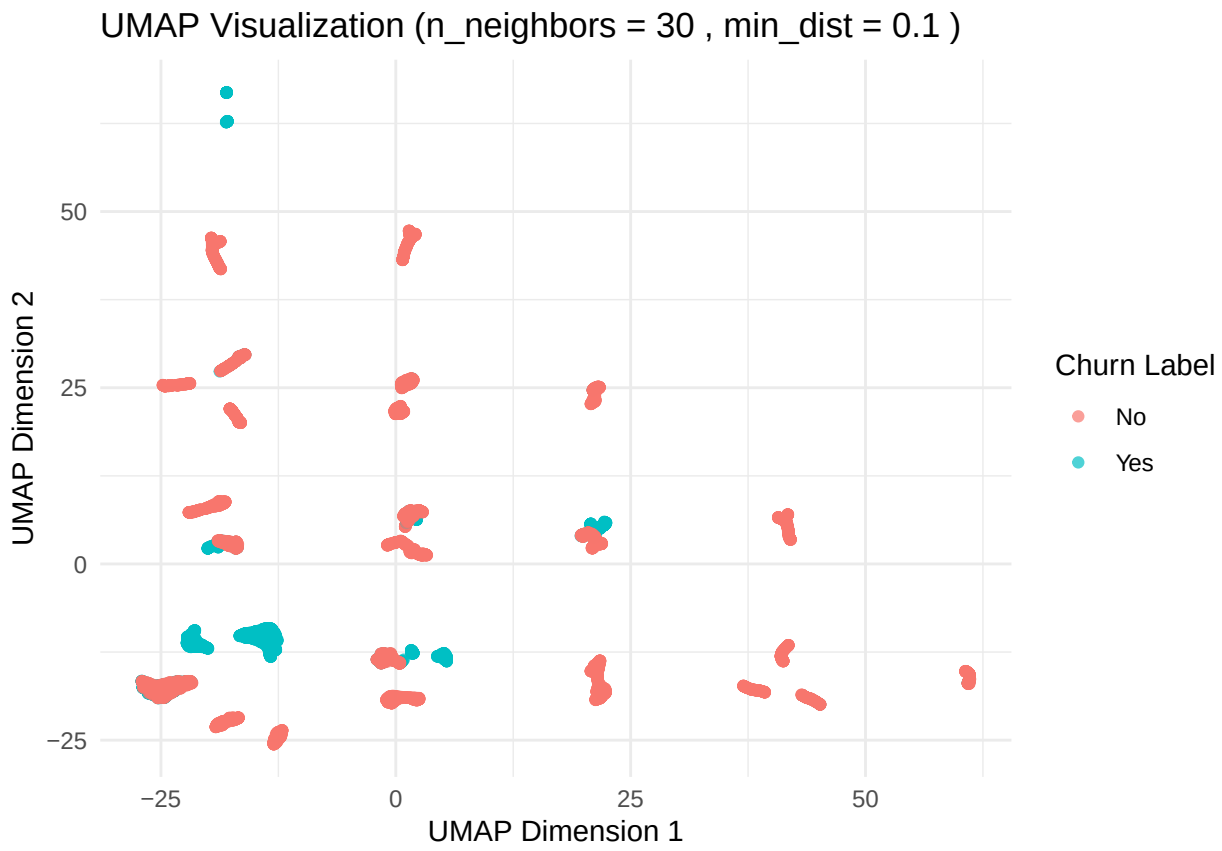


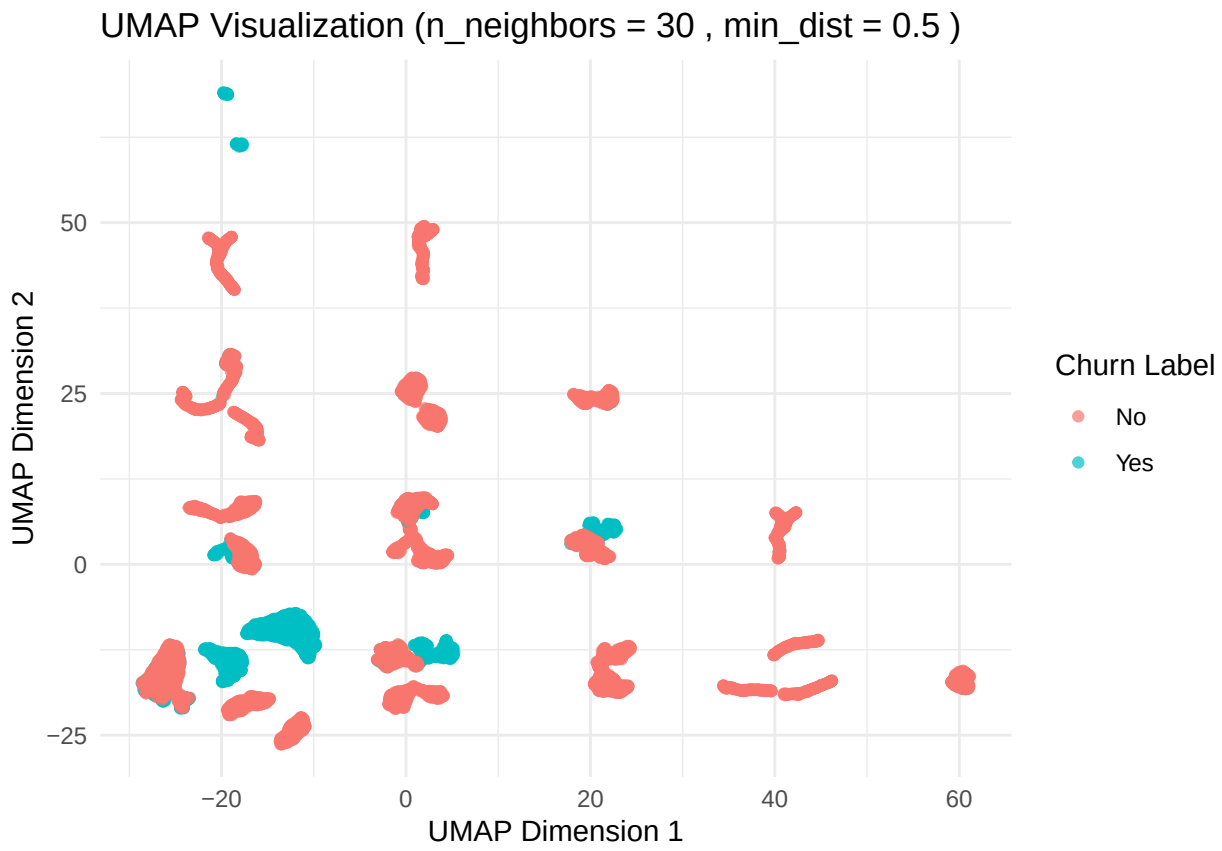

```r
library(umap)
library(ggplot2)

# Define combinations of parameters
n_neighbors_list <- c(10, 30, 50)
min_dist_list <- c(0.1, 0.5)

# Loop through each combination of n_neighbors and min_dist
for (n_neighbors in n_neighbors_list) {
  for (min_dist in min_dist_list) {

    # Configure UMAP parameters
    umap_config <- umap.defaults
    umap_config$n_neighbors <- n_neighbors
    umap_config$min_dist <- min_dist
    umap_config$random_state <- 42

    # Run UMAP
    set.seed(42)
    umap_result <- umap(as.matrix(processed_features), config = umap_config)

    # Create data frame for plotting
    umap_df <- as.data.frame(umap_result$layout)
    colnames(umap_df) <- c("UMAP1", "UMAP2")
    umap_df$ChurnLabel <- as.factor(telco_data$`Churn Label`)
```

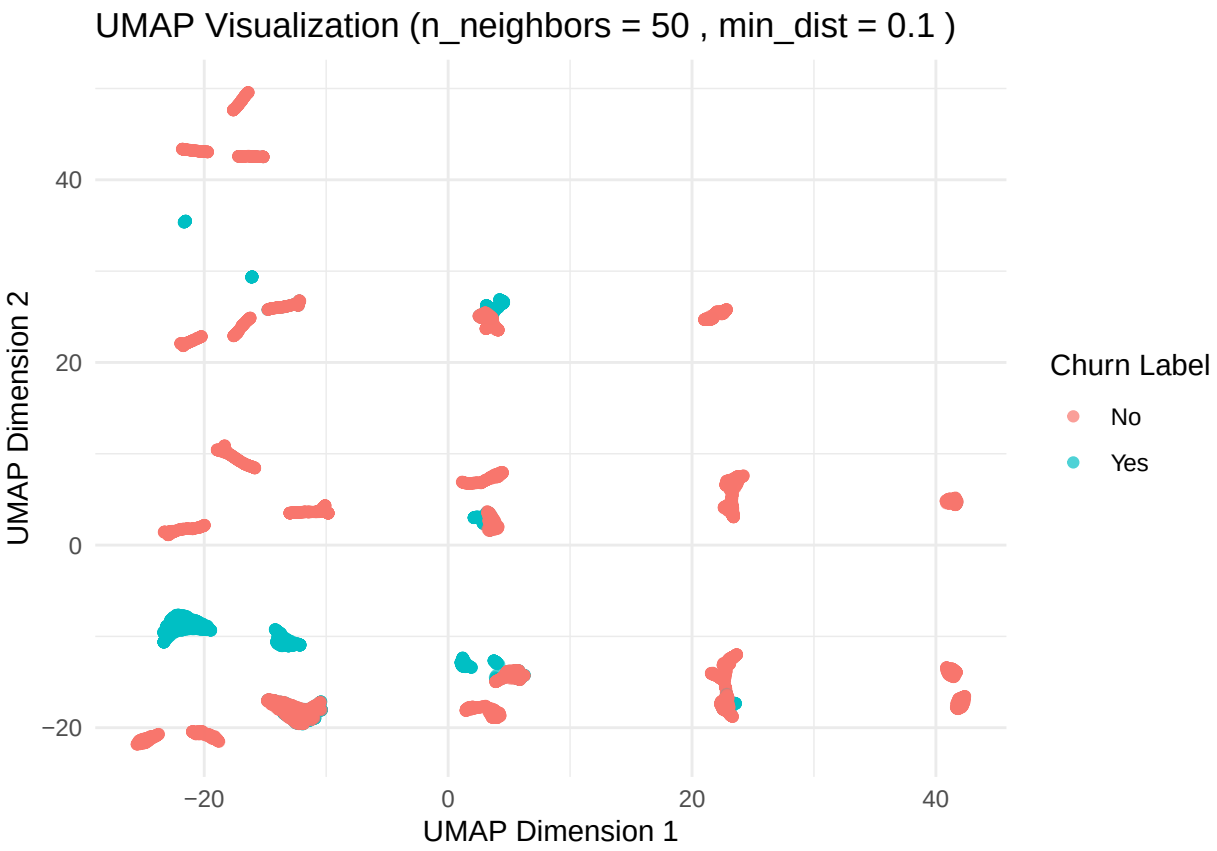
```
    # Create and show the plot
    plot_title <- paste("UMAP Visualization (n_neighbors =", n_neighbors, ", min_dist =", min_dist, ")")

    p <- ggplot(umap_df, aes(x = UMAP1, y = UMAP2, color = ChurnLabel)) +
      geom_point(alpha = 0.7) +
      labs(title = plot_title, x = "UMAP Dimension 1", y = "UMAP Dimension 2", color = "Churn Label") +
      theme_minimal()

    print(p)
  }
}
```

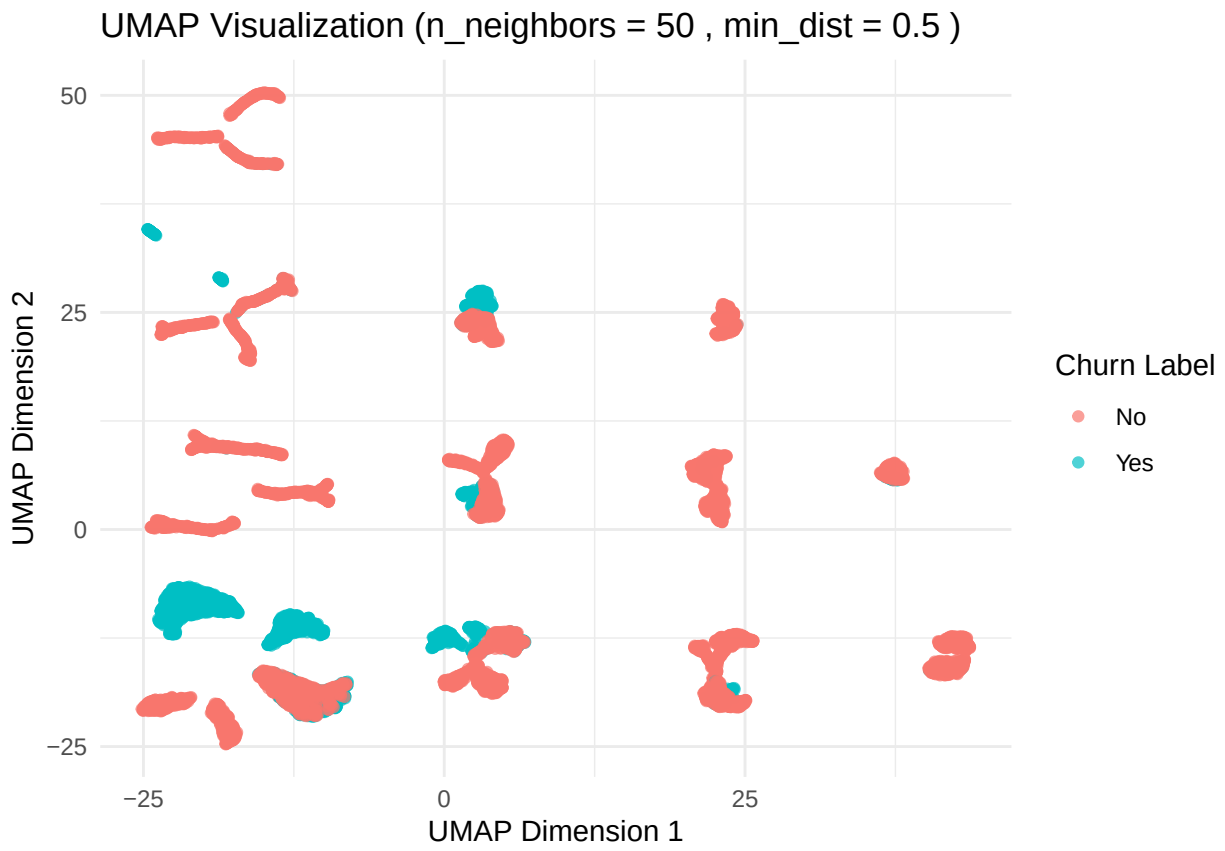



UMAP Visualization (n_neighbors = 10 , min_dist = 0.5)
UMAP Dimension 2
80
40
0
−40
−20
0
20
40
60
UMAP Dimension 1
Churn Label
No
Yes


UMAP Visualization (n_neighbors = 30 , min_dist = 0.1)
UMAP Dimension 2
50
25
0
−25
−25
0
25
50
UMAP Dimension 1
Churn Label
No
Yes


UMAP Visualization (n_neighbors = 30 , min_dist = 0.5)
UMAP Dimension 2
50
25
0
−25
−20
0
20
40
60
UMAP Dimension 1
Churn Label
No
Yes


UMAP Visualization (n_neighbors = 50 , min_dist = 0.1)
UMAP Dimension 2
40
20
0
−20
−20
0
20
40
UMAP Dimension 1
Churn Label
No
Yes




```r
library(dplyr)

# Create interaction terms
telco_data <- telco_data %>%
  mutate(
    Tenure_Charge = `Tenure in Months` * `Monthly Charge`,
    Satisfaction_Contract = `Satisfaction Score` * as.numeric(as.factor(Contract)),

    # Transform numerical features
    Log_Monthly_Charge = log1p(`Monthly Charge`),
    Square_Satisfaction = `Satisfaction Score`^2,

    # Create new features
    Avg_Charge_Per_Month = `Total Charges` / ifelse(`Tenure in Months` == 0, 1, `Tenure in Months`),
    High_Spender = as.integer(`Monthly Charge` > median(`Monthly Charge`, na.rm = TRUE))
  )
```

```r
categorical_features <- c("Contract", "Internet Type")

numerical_features <- c(
  "Tenure in Months", "Monthly Charge", "Satisfaction Score",
  "Tenure_Charge", "Satisfaction_Contract", "Log_Monthly_Charge",
  "Square_Satisfaction", "Avg_Charge_Per_Month"
)
```

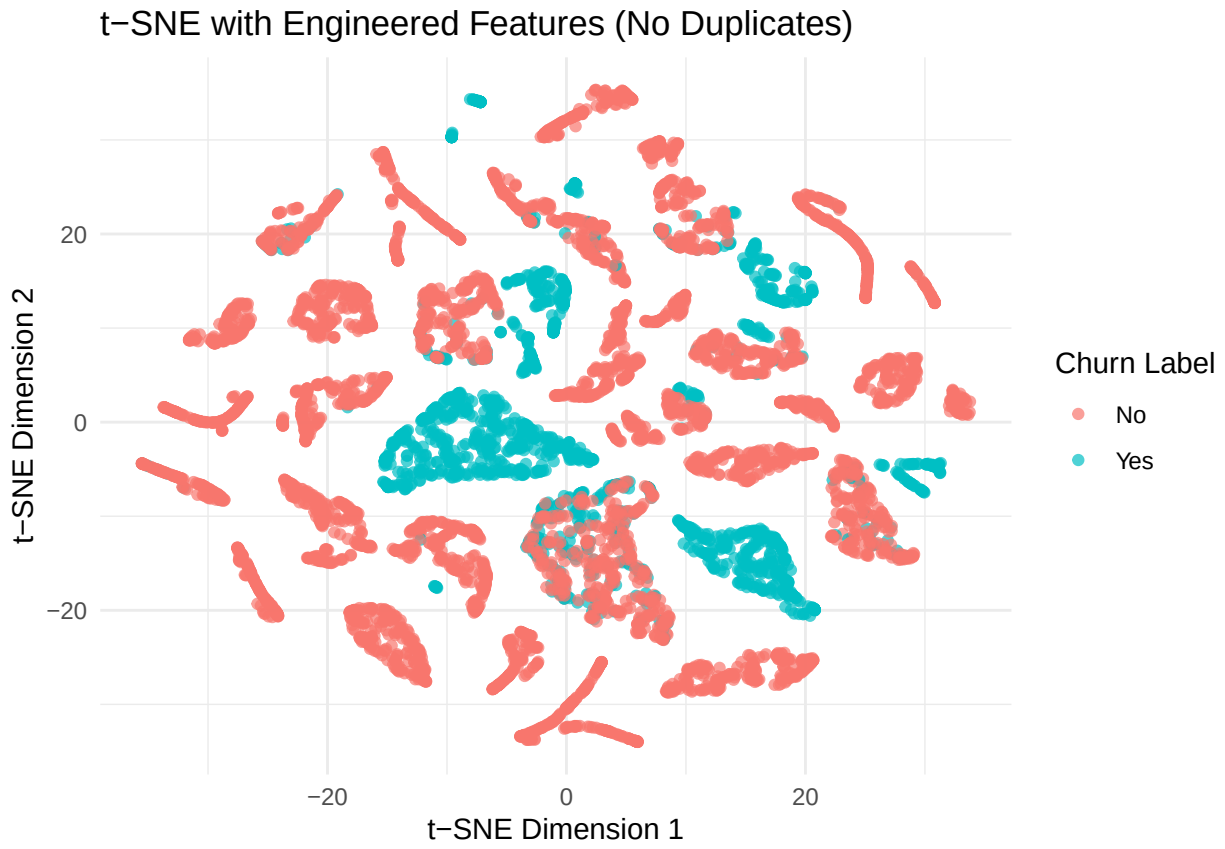
```r
library(recipes)
library(conflicted)
conflicts_prefer(dplyr::select)
```

```
## [conflicted] Will prefer dplyr::select over any other package.
```

```r
# Subset relevant columns
telco_subset <- telco_data %>%
  select(all_of(c(numerical_features, categorical_features)))

# Define preprocessing pipeline
rec <- recipe(~ ., data = telco_subset) %>%
  step_dummy(all_nominal_predictors(), one_hot = TRUE) %>%
  step_center(all_numeric_predictors()) %>%
  step_scale(all_numeric_predictors())

# Prepare and apply transformations
prepped_data <- prep(rec, training = telco_subset)
processed_features <- bake(prepped_data, new_data = telco_subset)
```

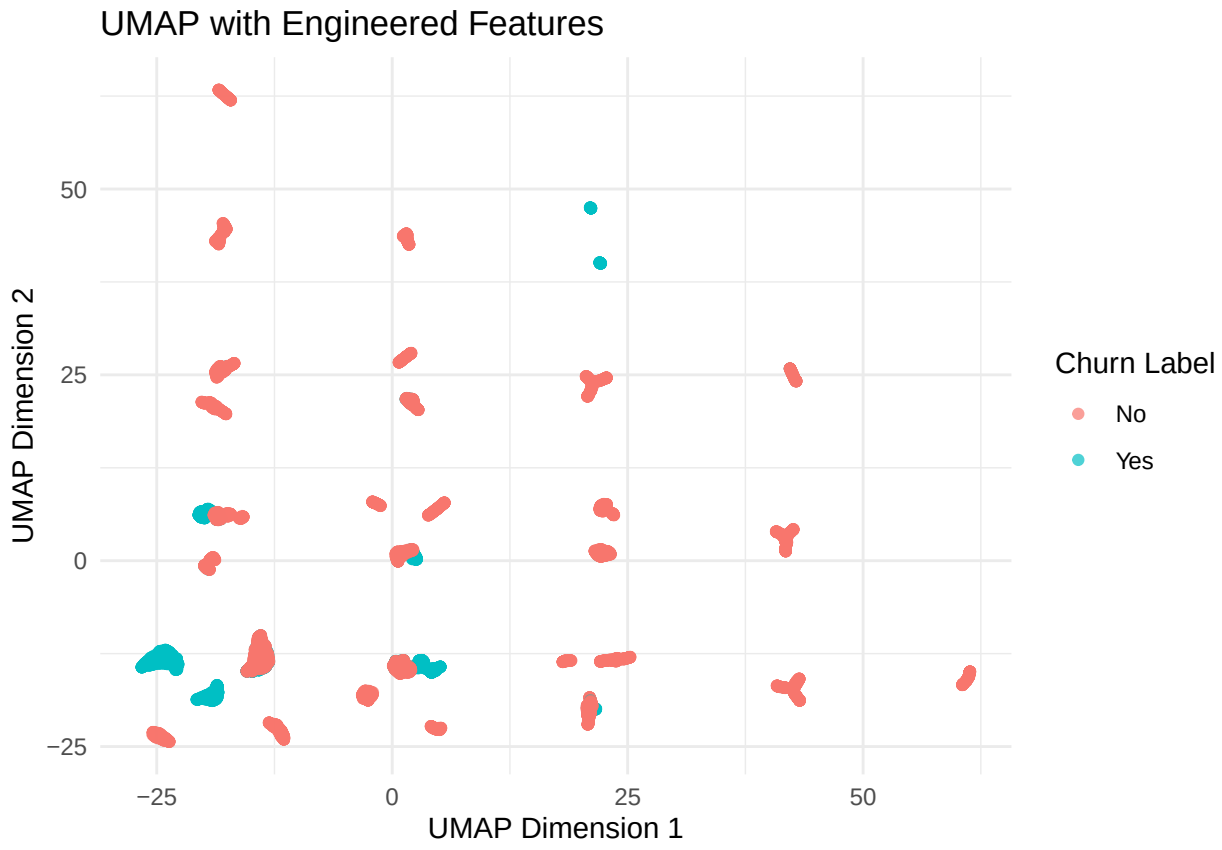
```r
library(Rtsne)
library(ggplot2)

# Step 1: Convert to data frame for de-duplication
processed_df <- as.data.frame(processed_features)

# Step 2: Identify and remove duplicate rows
non_duplicate_mask <- !duplicated(processed_df)
processed_unique <- processed_df[non_duplicate_mask, ]

# Step 3: Filter labels to match non-duplicated rows
filtered_labels <- telco_data$`Churn Label`[non_duplicate_mask]

# Step 4: Convert to matrix for Rtsne
processed_matrix <- as.matrix(processed_unique)

# Step 5: Run t-SNE
set.seed(42)
tsne_result <- Rtsne(processed_matrix,
                     dims = 2,
                     perplexity = 30,
                     max_iter = 500,
                     verbose = FALSE)

# Step 6: Prepare DataFrame for plotting
tsne_df <- as.data.frame(tsne_result$Y)
colnames(tsne_df) <- c("TSNE1", "TSNE2")
tsne_df$ChurnLabel <- as.factor(filtered_labels)

# Step 7: Plot
ggplot(tsne_df, aes(x = TSNE1, y = TSNE2, color = ChurnLabel)) +
  geom_point(alpha = 0.7) +
  labs(title = "t-SNE with Engineered Features (No Duplicates)",
```

```
       x = "t-SNE Dimension 1",
       y = "t-SNE Dimension 2",
       color = "Churn Label") +
  theme_minimal()
```




```
library(umap)
library(ggplot2)

# Configure UMAP
umap_config <- umap.defaults
umap_config$n_neighbors <- 30
umap_config$min_dist <- 0.1
umap_config$random_state <- 42

# Run UMAP
set.seed(42)
umap_result <- umap(as.matrix(processed_features), config = umap_config)

# Create a dataframe for plotting
umap_df <- as.data.frame(umap_result$layout)
colnames(umap_df) <- c("UMAP1", "UMAP2")
umap_df$ChurnLabel <- as.factor(telco_data$`Churn Label`)

# Plot the UMAP result
ggplot(umap_df, aes(x = UMAP1, y = UMAP2, color = ChurnLabel)) +
```

```
  geom_point(alpha = 0.7) +
  labs(title = "UMAP with Engineered Features",
       x = "UMAP Dimension 1",
       y = "UMAP Dimension 2",
       color = "Churn Label") +
  theme_minimal()
```




```
library(caret)
library(randomForest)
library(dplyr)

# Encode target variable ('Yes' -> 1, 'No' -> 0)
y <- as.factor(ifelse(telco_data$`Churn Label` == "Yes", 1, 0))

colnames(processed_features) <- make.names(paste0("Feature_", seq_len(ncol(processed_features))))

# Combine features and target
data_model <- as.data.frame(processed_features)
data_model$Churn <- y

# Set up stratified 5-fold cross-validation
set.seed(42)
cv_folds <- createFolds(data_model$Churn, k = 5, list = TRUE, returnTrain = TRUE)

# Initialize metric lists
```

```r
accuracy <- c()
precision <- c()
recall <- c()
f1 <- c()

# Cross-validation loop
for (i in 1:5) {
  train_indices <- cv_folds[[i]]
  train_data <- data_model[train_indices, ]
  test_data <- data_model[-train_indices, ]

  model <- randomForest(Churn ~ ., data = train_data, ntree = 100, importance = TRUE)
  predictions <- predict(model, test_data)
  truth <- test_data$Churn

  # Confusion matrix
  cm <- confusionMatrix(predictions, truth, positive = "1")

  # Store metrics
  accuracy <- c(accuracy, cm$overall["Accuracy"])
  precision <- c(precision, cm$byClass["Precision"])
  recall <- c(recall, cm$byClass["Recall"])
  f1 <- c(f1, cm$byClass["F1"])
}

# Print aggregated results
cat("Random Forest Classifier Results:\n")
```

```
## Random Forest Classifier Results:
```

```r
cat("K-Fold Cross-Validation Results:\n")
```

```
## K-Fold Cross-Validation Results:
```

```r
cat(sprintf("Accuracy: %.4f\n", mean(accuracy)))
```

```
## Accuracy: 0.9487
```

```r
cat(sprintf("Precision: %.4f\n", mean(precision)))
```

```
## Precision: 0.9628
```

```r
cat(sprintf("Recall: %.4f\n", mean(recall)))
```

```
## Recall: 0.8395
```

```r
cat(sprintf("F1-Score: %.4f\n", mean(f1)))
```

```
## F1-Score: 0.8968
```

```r
library(caret)
library(ranger)
library(dplyr)
library(conflicted)
conflicts_prefer(dplyr::filter)
```

```
## [conflicted] Will prefer dplyr::filter over any other package.
```

```r
conflicts_prefer(dplyr::select)  # also for select if needed
```

```
## [conflicted] Removing existing preference.
## [conflicted] Will prefer dplyr::select over any other package.
```

```r
# Encode the target variable
y <- as.factor(ifelse(telco_data$`Churn Label` == "Yes", 1, 0))

# Rename features to be safe for modeling
colnames(processed_features) <- make.names(paste0("Feature_", seq_len(ncol(processed_features))))

# Combine features and target
data_model <- as.data.frame(processed_features)
data_model$Churn <- factor(y, labels = c("No", "Yes"))

# Set up stratified 5-fold cross-validation with ROC
train_control <- trainControl(
  method = "cv",
  number = 5,
  classProbs = TRUE,
  summaryFunction = twoClassSummary,
  savePredictions = "final"
)

# Define parameter grid
rf_grid <- expand.grid(
  .mtry = c(2, 3, 4),
  .splitrule = "gini",
  .min.node.size = c(1, 2, 4)
)

# Train the model using caret + ranger
set.seed(42)
rf_model <- train(
  Churn ~ .,
  data = data_model,
  method = "ranger",
  trControl = train_control,
  metric = "ROC",
  tuneGrid = rf_grid,
  importance = 'impurity'
)

# Print best parameters
cat("Best Parameters:\n")
```

```
## Best Parameters:
```

```
print(rf_model$bestTune)
```

```
##   mtry splitrule min.node.size
## 5    3      gini             2
```

```
# Get final predictions and compute evaluation metrics manually
preds <- rf_model$pred
best_params <- rf_model$bestTune

# Filter predictions to the best parameter combination
preds_best <- preds %>%
  filter(
    mtry == best_params$mtry,
    splitrule == best_params$splitrule,
    min.node.size == best_params$min.node.size
  )

# Compute confusion matrix
cm <- confusionMatrix(preds_best$pred, preds_best$obs, positive = "Yes")

# Output metrics
cat("\nTuned Random Forest Classifier Results (Cross-Validation):\n")
```

```
##
## Tuned Random Forest Classifier Results (Cross-Validation):
```

```
cat(sprintf("Accuracy: %.4f\n", cm$overall["Accuracy"]))
```

```
## Accuracy: 0.9497
```

```
cat(sprintf("Precision: %.4f\n", cm$byClass["Precision"]))
```

```
## Precision: 0.9610
```

```
cat(sprintf("Recall: %.4f\n", cm$byClass["Recall"]))
```

```
## Recall: 0.8448
```

```
cat(sprintf("F1-Score: %.4f\n", cm$byClass["F1"]))
```

```
## F1-Score: 0.8992
```

```
library(caret)
library(dplyr)

# Encode target as factor: "Yes" = 1, "No" = 0
y <- as.factor(ifelse(telco_data$`Churn Label` == "Yes", 1, 0))
```

```r
# Combine features and label
data_model <- processed_features
data_model$Churn <- y

data_model$Churn <- factor(data_model$Churn, labels = c("No", "Yes"))

# Set up stratified 5-fold cross-validation
set.seed(42)
cv_folds <- createFolds(data_model$Churn, k = 5, list = TRUE, returnTrain = TRUE)

# Initialize metric lists
accuracy_lr <- c()
precision_lr <- c()
recall_lr <- c()
f1_lr <- c()

# Run manual cross-validation loop
for (i in 1:5) {
  train_idx <- cv_folds[[i]]
  train_data <- data_model[train_idx, ]
  test_data <- data_model[-train_idx, ]

  # Fit logistic regression
  log_model <- glm(Churn ~ ., data = train_data, family = binomial)

  # Predict probabilities and class labels
  probs <- predict(log_model, test_data, type = "response")
  preds <- ifelse(probs > 0.5, "Yes", "No") %>% as.factor()

  # Evaluation
  cm <- confusionMatrix(preds, test_data$Churn, positive = "Yes")
  accuracy_lr <- c(accuracy_lr, cm$overall["Accuracy"])
  precision_lr <- c(precision_lr, cm$byClass["Precision"])
  recall_lr <- c(recall_lr, cm$byClass["Recall"])
  f1_lr <- c(f1_lr, cm$byClass["F1"])
}
```

```
## Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
## Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
## Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
## Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
## Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
```

```r
# Print averaged results
cat("Logistic Regression Results:\n")
```

```
## Logistic Regression Results:
```

```r
cat(sprintf("Accuracy: %.4f\n", mean(accuracy_lr)))
```

```
## Accuracy: 0.9473
```

```r
cat(sprintf("Precision: %.4f\n", mean(precision_lr)))
```

```
## Precision: 0.9513
```

```r
cat(sprintf("Recall: %.4f\n", mean(recall_lr)))
```

```
## Recall: 0.8448
```

```r
cat(sprintf("F1-Score: %.4f\n", mean(f1_lr)))
```

```
## F1-Score: 0.8948
```

```r
library(caret)
library(dplyr)

# Encode target
y <- as.factor(ifelse(telco_data$`Churn Label` == "Yes", 1, 0))

# Rename features to valid names
colnames(processed_features) <- make.names(paste0("Feature_", seq_len(ncol(processed_features))))

# Combine features and target
data_model <- as.data.frame(processed_features)
data_model$Churn <- factor(y, labels = c("No", "Yes"))

# Define 5-fold stratified cross-validation
set.seed(42)
train_control <- trainControl(
  method = "cv",
  number = 5,
  classProbs = TRUE,
  summaryFunction = twoClassSummary,
  savePredictions = "final"
)

# Define parameter grid for glmnet
lambda_values <- 1 / c(0.01, 0.1, 1, 10, 100)

# Train logistic regression with regularization
set.seed(42)
log_model <- train(
  Churn ~ .,
  data = data_model,
  method = "glmnet",
  trControl = train_control,
  metric = "ROC",
  tuneGrid = expand.grid(
    alpha = 0,
    lambda = lambda_values
  ),
  family = "binomial"
```

```
)

# Show best parameters
cat("Best Parameters:\n")
```

```
## Best Parameters:
```

```
print(log_model$bestTune)
```

```
##   alpha lambda
## 1     0   0.01
```

```
# Extract predictions for best model
best_params <- log_model$bestTune
preds_best <- log_model$pred %>%
  filter(
    alpha == best_params$alpha,
    lambda == best_params$lambda
  )

# Compute confusion matrix
cm <- confusionMatrix(preds_best$pred, preds_best$obs, positive = "Yes")

# Output final metrics
cat("\nTuned Logistic Regression Results (Cross-Validation):\n")
```

```
##
## Tuned Logistic Regression Results (Cross-Validation):
```

```
cat(sprintf("Accuracy: %.4f\n", cm$overall["Accuracy"]))
```

```
## Accuracy: 0.9429
```

```
cat(sprintf("Precision: %.4f\n", cm$byClass["Precision"]))
```

```
## Precision: 0.9437
```

```
cat(sprintf("Recall: %.4f\n", cm$byClass["Recall"]))
```

```
## Recall: 0.8347
```

```
cat(sprintf("F1-Score: %.4f\n", cm$byClass["F1"]))
```

```
## F1-Score: 0.8859
```

```r
library(xgboost)
library(caret)
library(dplyr)

# Encode target variable: "Yes" = 1, "No" = 0
y <- ifelse(telco_data$`Churn Label` == "Yes", 1, 0)

# Convert processed_features and y to matrices (xgboost requires matrices)
X <- as.matrix(processed_features)
y <- as.numeric(y)

# Stratified 5-fold split
set.seed(42)
folds <- createFolds(y, k = 5, list = TRUE, returnTrain = TRUE)

# Initialize metric holders
accuracy_xgb <- c()
precision_xgb <- c()
recall_xgb <- c()
f1_xgb <- c()

# Cross-validation with early stopping
for (i in 1:5) {
  train_idx <- folds[[i]]
  test_idx <- setdiff(1:nrow(X), train_idx)

  # Training/validation split for early stopping
  train_X_full <- X[train_idx, ]
  train_y_full <- y[train_idx]

  n <- floor(0.8 * length(train_y_full))
  train_X <- train_X_full[1:n, ]
  train_y <- train_y_full[1:n]
  val_X <- train_X_full[(n + 1):length(train_y_full), ]
  val_y <- train_y_full[(n + 1):length(train_y_full)]

  # DMatrix objects for XGBoost
  dtrain <- xgb.DMatrix(data = train_X, label = train_y)
  dval <- xgb.DMatrix(data = val_X, label = val_y)
  dtest <- xgb.DMatrix(data = X[test_idx, ])

  # Train XGBoost with early stopping
  xgb_model <- xgb.train(
    params = list(
      objective = "binary:logistic",
      eval_metric = "logloss",
      max_depth = 6,
      eta = 0.3
    ),
    data = dtrain,
    nrounds = 100,
    watchlist = list(val = dval),
    early_stopping_rounds = 10,
```

```
    verbose = 0
  )

  # Predict and evaluate
  preds <- predict(xgb_model, dtest)
  preds_class <- ifelse(preds > 0.5, 1, 0)
  true_labels <- y[test_idx]

  cm <- confusionMatrix(
    factor(preds_class, levels = c(0, 1)),
    factor(true_labels, levels = c(0, 1)),
    positive = "1"
  )

  accuracy_xgb <- c(accuracy_xgb, cm$overall["Accuracy"])
  precision_xgb <- c(precision_xgb, cm$byClass["Precision"])
  recall_xgb <- c(recall_xgb, cm$byClass["Recall"])
  f1_xgb <- c(f1_xgb, cm$byClass["F1"])
}

# Print averaged results
cat("XGBoost Results with Early Stopping:\n")
```

```
## XGBoost Results with Early Stopping:
```

```
cat(sprintf("Accuracy: %.4f\n", mean(accuracy_xgb)))
```

```
## Accuracy: 0.9465
```

```
cat(sprintf("Precision: %.4f\n", mean(precision_xgb)))
```

```
## Precision: 0.9216
```

```
cat(sprintf("Recall: %.4f\n", mean(recall_xgb)))
```

```
## Recall: 0.8727
```

```
cat(sprintf("F1-Score: %.4f\n", mean(f1_xgb)))
```

```
## F1-Score: 0.8964
```

```
library(caret)
library(xgboost)
library(dplyr)

# Encode target variable: "Yes" = 1, "No" = 0
y <- ifelse(telco_data$`Churn Label` == "Yes", 1, 0)
y <- factor(y, levels = c(0, 1), labels = c("No", "Yes"))
```

```r
# Combine features and label
data_model <- processed_features
data_model$Churn <- y

set.seed(42)
train_control <- trainControl(
  method = "cv",
  number = 5,
  summaryFunction = defaultSummary,
  savePredictions = TRUE,
  verboseIter = TRUE
)

# Keep original grid
xgb_grid <- expand.grid(
  nrounds = c(50, 100, 200),
  max_depth = c(3, 5, 7),
  eta = c(0.01, 0.1, 0.2),
  gamma = c(0, 1, 5),
  colsample_bytree = c(0.8, 1.0),
  min_child_weight = 1,
  subsample = c(0.8, 1.0)
)

set.seed(42)
xgb_model <- train(
  Churn ~ .,
  data = data_model,
  method = "xgbTree",
  trControl = train_control,
  tuneGrid = xgb_grid,
  metric = "Accuracy"
)
```

```
## + Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
```

```
## - Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
```

```
## [11:58:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold1: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
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## [11:58:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
```

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## - Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
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## [11:58:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:58:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:58:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:58:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:58:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:58:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
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## [11:58:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:58:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:58:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:58:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold1: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
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## [11:59:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold2: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
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## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
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## [11:59:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
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## [11:59:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold2: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [11:59:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [11:59:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
```

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## - Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [11:59:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [11:59:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [11:59:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [11:59:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [11:59:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
```

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## [12:00:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold3: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
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## [12:00:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
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## [12:00:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
```

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## [12:00:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold3: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
```

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## - Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:00:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:00:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:00:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:00:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
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## [12:00:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:00:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:00:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:00:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:00:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:00:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold4: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
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## [12:01:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
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## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:30] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:31] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
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## [12:01:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:32] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:33] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:34] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:35] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:36] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:37] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold4: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:38] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:39] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:40] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:41] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:42] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:43] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
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## [12:01:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:44] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:45] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:46] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:47] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:48] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:49] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:50] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:51] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
```

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## - Fold5: eta=0.01, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:52] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:53] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.01, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:54] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:55] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:01:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:01:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:56] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:01:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:01:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
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## [12:01:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:57] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:01:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:01:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:58] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:01:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:01:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:01:59] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:02:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:00] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:02:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:01] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:02:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:02:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:02] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:03] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:02:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:04] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:02:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:02:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:05] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:02:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:06] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:02:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:02:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:07] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:02:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:08] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:02:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:02:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:09] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:02:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:10] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:02:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:02:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:11] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:02:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.10, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
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## [12:02:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:12] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:02:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:13] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:02:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:14] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:15] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:02:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=3, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:02:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:16] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
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## - Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:02:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:17] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:02:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:02:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:18] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:02:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:02:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:19] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:02:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:02:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:20] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:02:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:02:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:21] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## [12:02:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=5, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## [12:02:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:22] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## [12:02:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:23] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nr
## + Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## [12:02:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nr
## + Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nr
```

```
## [12:02:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:24] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=0, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:02:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:25] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:26] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:02:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=1, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## [12:02:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:27] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## [12:02:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:28] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=0.8, min_child_weight=1, subsample=1.0, nro
## + Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## [12:02:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=0.8, nro
## + Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## [12:02:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## [12:02:29] WARNING: src/c_api/c_api.cc:935: `ntree_limit` is deprecated, use `iteration_range` instea
## - Fold5: eta=0.20, max_depth=7, gamma=5, colsample_bytree=1.0, min_child_weight=1, subsample=1.0, nro
## Aggregating results
## Selecting tuning parameters
## Fitting nrounds = 100, max_depth = 7, eta = 0.01, gamma = 0, colsample_bytree = 0.8, min_child_weigh
```

```
# Best Parameters
cat("Best Parameters Found:\n")
```

```
## Best Parameters Found:
```

```
print(xgb_model$bestTune)
```

```
##    nrounds max_depth  eta gamma colsample_bytree min_child_weight subsample
## 74     100         7 0.01     0              0.8                1       0.8
```

```
# Compute Precision, Recall, F1 manually using predictions
library(caret)
predictions <- xgb_model$pred
```

```r
predictions <- predictions[predictions$Resample %in% paste0("Fold", 1:5), ]

# Confusion Matrix and Metrics
precision <- c()
recall <- c()
f1 <- c()
accuracy <- c()

for (i in 1:5) {
  fold_pred <- predictions[predictions$Resample == paste0("Fold", i), ]
  cm <- confusionMatrix(fold_pred$pred, fold_pred$obs, positive = "Yes")
  precision <- c(precision, cm$byClass["Precision"])
  recall <- c(recall, cm$byClass["Recall"])
  f1 <- c(f1, cm$byClass["F1"])
  accuracy <- c(accuracy, cm$overall["Accuracy"])
}

# Print Results
cat("\nXGBoost Results After Hyperparameter Tuning:\n")
```

```
##
## XGBoost Results After Hyperparameter Tuning:
```

```r
cat(sprintf("Accuracy: %.4f\n", mean(accuracy)))
```

```
## Accuracy: 0.9473
```

```r
cat(sprintf("Precision: %.4f\n", mean(precision)))
```

```
## Precision: 0.9541
```

```r
cat(sprintf("Recall: %.4f\n", mean(recall)))
```

```
## Recall: 0.8418
```

```r
cat(sprintf("F1-Score: %.4f\n", mean(f1)))
```

```
## F1-Score: 0.8944
```